Where's The Snow?

Well, the summer (what there was of it for us here in Rochester!) came and went, and here we are again...the annual Winter Catalog! A LOT has happened here at Ramsey since the last winter catalog. We moved to a brand new location in May! Check it out on-line at our web site web cam! With this move, we'll be able to serve your needs even better than what we've become famous for in the past!

So here we are; the leaves are falling, the kids are back in school, and it's time (at least for us!) to get out the snow shovels and the heavy coats! Oh yes, and snow tires for our vehicles! It was our goal this year to get the Winter Catalog in your hands before the snow falls. Well, as fast as I have been typing, there WERE some flakes out my window yesterday! And it's not even Halloween yet! I guess I better finish this up quick!

This year the Winter Catalog has dozens of neat new products that are sure to please everyone in your family. Check out the exciting new Hobby Kits starting on Page-17. The Blinky-Eyes has already been a hit in preparation for Halloween and the Holidays! And for those who can't afford to build a "battlebot" we have our brand new Walking Electronic Bug! This little guy wanders around the floor and avoids walls and other Electronic Bugs! If you're running one of our AM or FM Broadcasters, check out our brand new Phone Line Interface/Mixer that allows you to put phone calls "on-the-air" just like the professionals!

Electronics is not only fun, but a great learning experience. You don't just get a bag of parts and some instructions with our kits. We go into circuit theory, how it works, and why it works, all in a fun and easy to understand format. That's something we've become famous for! And 31 years later there are thousands and thousands of hobbyists young and old that have enjoyed the kit building experience.

Best Wishes from all of us at Ramsey Electronics!

Professional 35W FM Stereo Transmitter

✔ 35W output, temperature and VSWR protected
✔ Automatic audio & power controls
✔ Digitally synthesized PLL for rock solid frequency stability
✔ Digital display of all parameters
✔ Automatic battery back-up switch
✔ 110/220 VAC, 12 VDC operation

Winter Super Sale Expires 01/15/04

35 Watts, Frequency Agile...In Two Rack Units!

USE IT ANYWHERE IN THE WORLD
Wired & Tested

We designed the PX1 to be the gold standard in transmitters intended for worldwide service. Whether your power main is 110, 220 VAC, or 12 VDC, the PX1 can handle it. Our battery back-up option is ideal for remote areas with questionable power; a standard automobile battery is seamlessly switched in when regular power is lost - your listeners will never miss a beat! Automatic VSWR protection ensures maximum power into any antenna situation that may develop such as ice or wind damaged elements; conditions that would shut competitive transmitters down.

CONTINUOUSLY CHECKS YOUR SYSTEM

PX1 circuitry makes subtle adjustments to various circuit parameters depending upon frequency, temperature, power, audio level, and deviation - in short, it's like having a station engineer constantly monitoring and adjusting on-the-fly! An 8 times oversampled stereo generator with true analog filters throughout assures a clean, refreshing sound image while the RF transmitter chain employs generously rated components for headache-free, long life. The PX1 can also be used as a stand-alone exciter for higher power installations.

EASY INSTALLATION, QUICK SETUP, SIMPLE CONNECTIONS!

Installation of the PX1 is a breeze. A standard Type-N connection is provided for RF Output. Balanced (XLR) left and right audio inputs are provided to properly interface with any source you have. In addition, BNC SCA/Digital inputs are provided along with a quick disconnect connector for a 12 VDC standby/back-up power input. In short, connect your audio sources and antenna, power it up, set frequency and power, and you're on the air! It doesn't get any simpler! All of this in a compact 3.5" standard 2 rack unit case.

EXTREMELY VERSATILE, FOR ANY APPLICATION!

Although specifically designed for Domestic LPFM and International stand-alone stations, the PX1's compact size and 12VDC operation make it ideal for a backup transmitter at a commercial station, or as a low power translator station.

General Display (Default) — RF Frequency — Audio Levels — RF Output Power — Antenna System VSWR — Stereo/Mono Mode — Internal Temperature — Station ID — VCO Deviation Levels — Option Display — Audio Levels — Controls Locked/Unlocked

FULL FRONT PANEL MONITORING

Operation of the PX1 is simple and intuitive via the front panel switch matrix. All functions, controls, and status are displayed on the 2 line by 20 character vacuum fluorescent display.

SPECIFICATIONS

Frequency Range:	87.5 to 108.1 MHz
Power:	110/220 VAC, 50/60 Hz; 12VDC@7.0A for rated output
Broadcast Modes:	Stereo/Mono + SCA and Digital RDS Inputs.
Bandwidth:	±75 kHz when properly adjusted, auto adjust feature prevents overmodulation.
Separation:	Better than 50 dB (typical 60–70 dB).
CrossTalk:	Better than 50 dB.
Asynchronous:	Better than 60 dB.
THD:	Better than 0.3% with processing.
Audio Inputs:	Standard Balanced Inputs +4 dBu/1.228V rms/3.47 V p-p; -10 to +10 dBm range
Audio Input Impedance:	22K Ohms
SCA and Digital Inputs:	BNC (50 Ohms).
RF Output:	35W Continuous (Max.) into a 50 ohm load. Fully adjustable from 10 watts to full power
Harmonic Supression:	Better than -81 dBc
Display:	2 lines x 20 characters vacuum fluorescent display.
Controls:	5 navigation controls (Up, Down, Left, Right, Enter).
Cooling:	High CFM Fan, front intake, rear exhaust.
Over-power Protection:	Continuously checks for proper power output to within 5%.
VSWR Protection:	Continuous VSWR monitoring with auto level control.
Over-temperature Protection:	Auto over-temperature control, 75°C max. fixed.
Overmodulation Protection:	Auto control of audio modulation levels, on/off.
Audio Frequency Range:	20 Hz to 16 kHz ±1 dB. Steep "brick wall" 16 kHz low phase shift, low pass filter, down 68 dB @ 19 kHz and above.
Adjustments:	Audio input levels, Modulation Level, Power Level, Frequency (in 100 kHz steps), Stereo/Mono mode, Auto Adjust Modulation mode (On/Off).
Dimensions:	Standard 2-unit rack-mount case, 19" wide, 14.25" deep, 3.5" high.

The PX1 is FCC Part 73 Verified. (Note: The end user is responsible for complying with all FCC rules & regulations within the US, or any regulations of their respective governing body). All specifications are subject to change.

PX1 Professional 35 Watt Synthesized FM Stereo Transmitter — **WOW!! SAVE $300!** $1495.95 $1795.00

35 Watt Complete FM Stereo Radio Station

Winter Super Sale Expires 01/15/04

✔ 35 watt FM stereo transmitter
✔ Integrated CD player
✔ Integrated cassette player
✔ Integrated audio mixer
✔ Professional microphone and cables
✔ Omnidirectional antenna and coax
✔ Installed and prewired in a high impact road case!

Get On The Air Quick!
With A Complete 35W Station IN-A-BOX!

One of the most requested FM broadcast products over the past year has been a "radio station in a box". At first we laughed. What did they mean... in a box? Then as the requests came pouring in, we found out! Overseas customers, as well as some of the new LPFM licensees have a need to quickly "get on the air" at temporary locations or in the interim to their installed studio/transmitter setup. A number of overseas customers also had to originate short term programming from various remote origination sites for disaster preparedness broadcasts! Well, here you go... a radio station in a box!

First we took our state of the art PX1 FM Stereo Transmitter and installed it in an impact resistant, rack mount travel case. Then we added the Superscope PAC750 integrated mixer/cassette deck/CD deck. We prewired them, then added a professional microphone and some cables. Finally, we included our 3.4 dB gain omnidirectional FM Broadcast antenna with 100 feet of matching low loss coaxial cable. There you go, a complete radio station, ready to plug in, and be on the air!

Just imagine: Show up, open up the case, plug in the AC power, temporarily mount the antenna, connect the coax, and you're all set! The applications are endless! From live remotes to station backup transmitters, our "Station In A Box" is your solution! *(Note: The end user is responsible for complying with all FCC rules & regulations within the US, or any regulations of their respective governing body).*

PX1 FM STEREO TRANSMITTER

Complete 35 Watt Synthesized FM Stereo transmitter. See page 3 for full details and specifications.

PAC750 INTEGRATED AUDIO SYSTEM

A complete, integrated, professional audio system. Includes an input audio mixer, cassette deck, CD player, with full audio and cueing controls.

FMA200 OMNIDIRECTIONAL VERTICAL ANTENNA

This 5/8 Wave omnidirectional antenna gives you 3.4 dB gain over a unity gain antenna. That's more than twice the effective radiated power. That will give you the maximum punch from your temporary location. Quick, on-the-spot assembly specifically for your operating frequency. Easy to mount on any mast, tower, or building. Some customers have even mounted them on the roof of their van, and have operated the station from inside the van!

We include 100 feet of low loss LMR-400 coaxial cable, with connectors pre-installed to get you on the air quick. For complete details on this and other FM broadcast antennas see page 9.

PROFESSIONAL MICROPHONE, STAND, AND CABLES

Professional handheld dynamic microphone, 25' professional XLR microphone cable, and a matching desk stand.

ALL INSTALLED AND PREWIRED IN A HIGH IMPACT RACK MOUNTED ROAD CASE!!!

GET ON THE AIR QUICK...
AND SAVE $500!

PXB35   Professional 35 Watt Radio Station In A Box $3295.95 $3,795.00

Super-Pro Synthesized FM Stereo Radio Station

✔ **All new design for 2002! Better than ever!**
✔ **Built-in mixer - 2 line inputs and one microphone input, line level monitor output**
✔ **Precision active low-pass "brick wall" audio filter**
✔ **Clean, filtered RF output suitable for RF amplification**
✔ **Frequency range 88.0 to 108.0 MHz, 100 KHz steps**

KIT
Wired & Tested

Winter Super Sale Expires 01/15/04

Our FM100B is the updated version of a truly professional frequency synthesized radio transmitter station in one durable, handsome cabinet. It is used all over the world by serious hobbyists as well as churches, drive-in theaters, and schools. No one else offers all of these features at this price! The included frequency display and audio level meters assist in easy operation. The "B" version now includes some additional functionality including a line level monitor output, improved stereo separation, spectral purity, audio clarity, and adjustable RF Output.

Sound quality is impressive, and equal to or better than most commercial stations. Low pass input filtering plus peak limiters put maximum "punch" in your audio, and prevent overmodulation distortion. Churches, drive-ins, schools and colleges find the FM100B to be the answer to their transmitting needs... you will too. The kit includes a sharp looking metal cabinet, whip antenna, and built-in 110/220 volt AC power supply. An external antenna connection allows hook-up to high performance antennas like our vertical and colinear models on page 9. We also offer a high power export version of the FM100B that's fully assembled with one watt of RF power, for miles of program coverage. Many islands and villages use it as their local radio station! The export version can only be shipped outside the USA, or within the US if accompanied by a signed statement that the unit will be exported. One watt units at full power cannot be used with the telescoping whip antenna and MUST be utilized with an external antenna to maintain proper VSWR. *(Note: The end user is responsible for complying with all FCC rules & regulations within the US, or any regulations of their respective governing body).*

FM100B	Super-Pro FM Stereo Radio Station Kit, 5uW to 25 mW Output	$259.95	~~$269.95~~
FM100BEX	Super-Pro High Power (Export ONLY) Kit, 5uW to 1W Output	$329.95	~~$349.95~~
FM100BWT	Factory Assembled & Tested FM100BEX, 5uW to 1 Watt Output	$399.95	~~$429.95~~

Winter Super Sale Expires 01/15/04

Professional 40 Watt FM Power Amplifier

Ultra-Reliable For Continuous Duty Operation!

✔ **Frequency range 87.5 to 108 MHz**
✔ **Variable 2 to 40 watts output**
✔ **Selectable 2 watt or 5 watt drive**
✔ **Microprocessor controlled overdrive, VSWR, and over-temperature protection**
✔ **Harmonics meet or exceed FCC specifications for licensed transmitters!**

Wired & Tested

SPECIFICATIONS

RF Power Output:	2W - 40W, continuous duty
Input Power:	Selectable 2W or 5W
Frequency Range:	87.5 MHz - 108.1 MHz
VSWR Protection:	Automatic VSWR protection
Temp. Protection:	Automatic over-temp protection
Over-Drive Protection:	Automatic over-drive protection
Display:	Multifunction LED, Power Output, VSWR, Input Power, Temperature, Fault
Controls:	Power On/Off, Output Power Adjust, Display Select
Input Connection:	BNC
Output Connection:	Type-N
Cooling:	Forced air
Power:	100 to 240 VAC, 2.5 amps, 50/60 Hz
Case:	9.55"W x 3.65"H x 12.54"D
Weight:	8 Lbs

At last, the number one requested new product is here! You asked for a professional quality FM power amplifier with 30-40 watts output that has variable drive capabilities. You asked for continuous duty operation, with proper automatic protection circuits. And finally, you asked for totally variable output power in line with your FCC, DOC, or ERP requirements. Introducing the PA100 from Ramsey, the name known for professional quality FM transmitter products.

If you are one of the thousands of export users of our famous FM100EX and FM100WT Super Pro Stations (or new B series above) you'll love the PA100. With the mere one watt drive from these units you can boost your output up to 30 watts! And this is continuously variable throughout the full range! If you are currently using another FM transmitter that provides more than one watt output, no problem! The drive input is selectable for two or five watts to achieve the full rated output!

Features a multifunction LED display to show you output power, input drive, VSWR, temperature and fault conditions. The built-in microprocessor provides AUTOMATIC protection for VSWR, over-drive, and over-temperature. The built-in fan provides a cool 24/7 continuous duty cycle to keep your station on the air! Using our FMA200 antenna? Order one of our convenient preassembled low loss cable kits on page 9 to get you on the air quick! *(Note: The end user is responsible for complying with all FCC rules & regulations within the US, or any regulations of their respective governing body).*

PA100	40 Watt FM Power Amplifier, Factory Assembled & Tested	$549.95	~~$599.95~~

DON'T FORGET YOUR POWER OUTPUT!

If you've been using an FM100WT with our TM100 antenna, and you boost the output with one of our PA100's, you can no longer use the TM100 antenna! Check out the FMA200 on Page 9

Synthesized FM Stereo Transmitter

✔ Synthesized 88 to 108 MHz for no frequency drift!
✔ New design features 'Line In' and 'Loop Out' 1/8" Stereo jacks!
✔ 'F' style RF output external antenna connector

New Design!

Need professional quality features but can't justify the cost of a commercial FM exciter? The FM25B is the answer! A cut above the rest, the FM25B features a PIC microprocessor for easy frequency programming without the need for look-up tables or complicated formulas! The transmit frequency is easily set using DIP switches, no need for tuning coils or "tweaking" to work with today's 'digital' receivers. Frequency drift is a thing of the past with PLL control making your signal rock solid all the time - just like commercial stations. The FM25B's real claim to fame however is the use of the latest cutting edge stereo generator to hit the market. The audio quality is excellent with amazingly good stereo separation to keep even the pickiest audiophiles happy! Connections couldn't be any easier; use the provided cable to interface with the line output of any CD player, tape deck, computer, or mike mixer. Just plug it in and you're on the air! Kit comes complete with case set, whip antenna, 120 VAC power adapter, 1/8" Stereo to RCA patch cable, and easy assembly instructions - you'll be on the air in just an evening! Case size 5"w x 1½"h x 5¼"d.
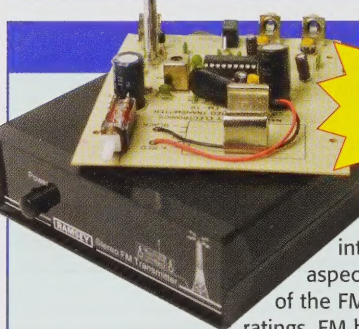
FM25B Professional Synthesized FM Stereo Transmitter Kit, adjustable 5 uW to 25 mW Output **$119.95** $139.95

Tunable FM Stereo Transmitter

✔ Tunable anywhere in standard FM band... 88 to 108 MHz
✔ Operates on 5 to 15 VDC
✔ Standard line level inputs with RCA phono jacks
✔ Settable pre-emphasis 50 or 75 µSec for use anywhere in the world
✔ Adjustable input sensitivity
✔ Easy to build, low cost transmitter, includes matching case set!

Learn FM Basics!

The FM10A has plenty of power and our manual goes into great detail outlining all the aspects of antennas, transmitting range and the FCC rules and regulations. You'll be amazed at the exceptional audio quality of the FM10A, in fact, your station will sound better than most others on the dial! This is because in their quest for ever higher ratings, FM broadcasters crank up the average level of their modulating signal in order to sound 'louder'. This produces a noticeably more muddy and constrained sound than your signal. Runs on internal 9V battery, external power from 5 to 15 VDC, or an optional 120 VAC adapter is also available. Includes the matching case & knob set for a professional finished look. Case size 5"W x 1½"H x 5¼"D

FM10C FM Stereo Transmitter Kit With Case **$39.95** $44.95
FMAC 110 VAC Power Supply for FM10A $9.95

Professional Synthesized AM Transmitter

✔ Fully synthesized, no frequency drift!
✔ Ideal for schools
✔ Microprocessor controlled
✔ Strappable for higher power output where regulations permit
✔ Includes AC power adapter and case set

Be As Stable As A Rock!

Run your own radio station! The AM25 operates anywhere within the standard AM broadcast band, and is easily set to any clear channel in your area. The design is similar to that of a commercial radio transmitter, so you'll learn how the "big guys" operate. It is widely used by schools - standard output is 100 mW, with range up to ¼ mile, but is jumper settable for higher output where regulations allow. Broadcast frequency is easily set with dip-switches and is stable without drifting. The transmitter accepts line level input from CD players, tape decks, etc. Includes case & knob set & AC power supply.

AM25 Professional AM Synthesized AM Transmitter Kit, Case, and AC Power Supply **$89.95** $99.95

Tunable AM Radio Transmitter

✔ Tunes entire 550 to 1600 KHz AM band
✔ Operates on 9 to 12 VDC, includes case set
✔ Standard line level input with RCA phono jack
✔ 100 mW output. Range up to ¼ mile under optimum conditions

#1 Scouting Project For Years

The AM1 is a great first kit, and a fine low power AM broadcaster for the hobbyist on a budget. It's a great way to learn the basics of AM broadcast technology, not to mention basic soldering and component identification (if you're a beginner!) The transmitter can be tuned to broadcast anywhere in the AM band (550 to 1600 kHz). Setting frequency is simple - tune a nearby AM radio to the desired frequency, then adjust the AM1 coil to match the radio. With 100 mW of output power, range can be up to ¼ mile. The AM1 has been used by Scout camps, churches, schools, and other organizations to provide easy and low cost communications.

AM1C AM Radio Transmitter Kit With Case **$29.95** $34.95
AC125 110VAC Power Adapter $9.95

Phone Patch Mixer NEW FOR 2004!

Wired & Tested **KIT**

✔ Send telephone call audio over-the-air!
✔ Stereo line/microphone/phone line mixer!
✔ Automatic gain, automatic noise gating, variable compression!

Mix Your Phone Line, Microphone, And Music Source!

SPECIFICATIONS	
Inputs:	Telephone line, RJ11
	Microphone, ¼" phone
	Stereo line level, (2) RCA phono
Outputs:	Line level out, (2) RCA phono
	Telephone line, RJ11
Controls:	Phone line volume
	Microphone volume
	Line volume
	Phone line mute
	Microphone mute
	Power on/off
Indicators:	Power on LED
	Microphone on LED
	Line output peak LED
Power requirement:	9-15VDC 2.1mm adapter plug
Case/knobs:	Included, 9.55"W x 3.65"H x 12.54"D

Ever wish you could broadcast on-the-air telephone calls like the big guys do? Due to popular demand, and probably the most requested kit idea ever received, we came up with the PPM3 Phone Patch Mixer! This is a perfect match to any of our AM or FM broadcasters! Sure it's easy to plug a music source into any of them, but when you want to add a microphone (after all, you ARE the Disc Jockey of your station!) and then want to put incoming phone calls on-the-air and properly mix them together, it becomes difficult! Not anymore with the PPM3.

Simply plug your microphone, phone line, phone, and stereo line level program source into the PPM3. Connect the output to your AM or FM broadcaster's line level input and you're all set! You now have the ability to mix both sides of a phone conversation and control your microphone to equal volumes! Separate independent automatic noise gating and automatic variable gain and compression circuits are used for both the telephone line audio and microphone inputs to assure a great sounding output! The stereo line level mixer features mono injection of phone line and microphone audio for equal balance. Powered by 9-15VDC. *Now when those people call complaining about YOU, put THEM on-the-air!*

PPM3C	Phone Line Interface/Mixer Kit, With Case	$69.95
PPM3WT	Factory Assembled & Tested PPM3C With Case And Power Supply	$99.95
AC125	110VAC Power Adapter	$9.95

Wired & Tested **KIT**

Stereo Transmitter Companion

Distortion Free Audio Processing!

✔ Make your radio station sound like the pros!
✔ Limiter/processor for that high density modulation 'punch'
✔ 3 band audio processor - separate controls for Bass, Presence, and Brilliance

Your station's image and degree of professionalism is defined by its sound quality. While we can't make your jokes or witty announcing skills any better we can at least make the technical quality the best it can be! The STC1 connects easily between your CD player, mike mixer, or tape deck and the Radio Transmitter. If you like programming Rock music, crank up the Bass and Brilliance controls for some "sock-em" sound, Classical and vocal tunes come alive with a sweetening of the Presence control, monologues, commentaries and talk radio are benefited by Bass and Presence. Set the levels so that the Peak LED flickers a bit and you're assured of perfect modulation without splatter or distortion! Low cost CD players that have poor filtering on the output are really cleaned up by the switched-capacitor low pass filtering in the STC1. Higher order harmonics and clock feed-through that causes annoying heterodynes and whooshing noises disappear. Operates on 9 to 15 volts DC. Includes the matching case & knob set for a finished look!

STC1C	Stereo Transmitter Companion Kit With Case	$64.95
STC1WT	Factory Assembled and Tested STC1C With Case And Power Supply	$119.95
AC125	110VAC Power Adapter	$9.95

The Bullshooter Digital Voice Storage

Wired & Tested **KIT**

✔ Endless tape loop playback without the tape!
✔ 8 full minutes of pure digital audio storage time
✔ Mic & line level inputs

No More Tape To Break!

We've received a ton of calls from realtors and other people asking the same question..."What do you have that will repeat a sales pitch all day long?" Well, here it is, the BS1!! This kit combines a sweet new digital recording chip and a microprocessor to provide eight full minutes of high quality digital recording with "endless loop" playback capabilities. Then we added an on-board high sensitivity electret condenser microphone to record your announcements on the spot and an audio amplifier with a front panel volume control to play back your announcements directly to an external speaker. Features dual line level mono outputs for connection to left & right stereo inputs on amplifiers and transmitters, line level input, and 2.5mm miniature phone speaker output. Perfect for everything from advertising real estate to repeating monotonous instructions at a swap meet! Easy one-touch pushbutton operation keeps everything simple...just push the record and play buttons and watch the LED indicators indicating which mode you're in. It's that simple! Runs on 12VDC. The included matching case measures 5"W x 1½"H x 5¼"D. Start "Squawking" those messages now with the BS1!

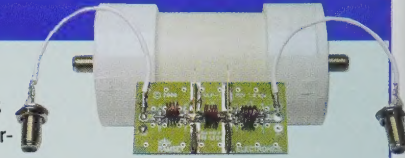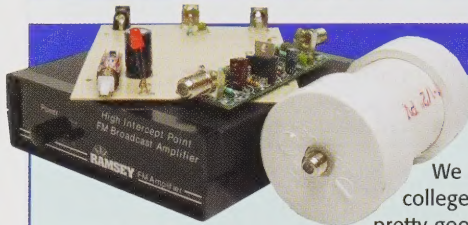|		
BS1C	Bullshooter Endless Loop Voice Storage Recorder Kit With Case	$64.95
BS1WT	Factory Assembled & Tested BS1C With Case And Power Supply	$99.95
AC125	110VAC Power Adapter	$9.95

FM Low Pass Filter

Wired & Tested   **KIT**

"Clean Up" Your FM Broadcasts!

The FM Low Pass Filter kit came about while designing the PX1, Professional FM Broadcaster. The FCC Ruling 99–25 created a class of radio stations designed to serve localized communities by authorizing new classes of non-commercial, low power FM radio services (LPFM). In order to meet the stringent guidelines of the FCC, the PX1 underwent months of design sessions and many hours of painstaking tests. One of the secrets to its clean output is the FMLP1. If you own one of those spectrally dirty "import" exciters you'll definitely want to add the FMLP1 to clean up the output and properly match your power amplifier. Maximum input power 50 watts. The kit utilizes surface mount chip caps, so you'll need ultra fine solder and a magnifying lamp.

FMLP1	FM Low Pass Filter Kit	$29.95
FMLP1WT	FM Low Pass Filter, Factory Assembled & Tested	$49.95

High Intercept Point FM Broadcast Amplifier

KIT

Amplify BEFORE The Line Loss!

✔ Virtually overload proof
✔ Mast mount for best signal to noise ratio and performance
✔ Also works great for low power FM transmitters
✔ Put your power at the antenna not in the feedline
✔ Very well filtered with 5 sections of low pass filtering

We developed this unit to try and receive a small college station about 35 miles away. Sure, we had a pretty good omni directional FM antenna on the roof, but we also had a big 50KW local AM station about 3 miles away! Any preamp we tried simply overloaded and replicated the strong station all over the band. Our solution was to take our popular broadband LPA1 one watt (!!) amplifier, add lots of low pass filtering and selectivity for the FM band, and put it in a nice weatherproof housing. To make things even easier, we added a power insertion box to feed the DC power up the same coax as the signal! Wow, did it do a job! Then - as an experiment - we tried using it to boost one of our FM transmitters, cool! We couldn't believe the increase in transmission range, and the lowpass filtering made us feel pretty good about not futzing up anyone else's reception! Naturally, this is a no-no in the USA, but great for the export markets. Includes the outdoor PVC enclosure and the matching black case & knob set. Discover the first rule of amplifiers...do it BEFORE the noise, with the FMBA1C!

FMBA1C	High Intercept Point FM Amplifier Kit With Case	$74.95
AC125	110VAC Power Adapter	$9.95

RF Linear Power Amplifier

✔ Up to one watt output!
✔ 300KHz to 1000 MHz
✔ Runs on 12-15 VDC

Wired & Tested   **KIT**

Our Famous Broadband Amplifier!

The LPA1 is the ticket for boosting power up to 1 watt over a frequency range of 300 KHz to over 1000 MHz! Although intended for use as a lab amplifier, many users in foreign countries use the LPA1 to boost their Ramsey FM stereo transmitters to a watt of power capable of providing radio service through an entire town. Power required is 12 to 15 volts DC at 250mA via 2.1mm male power jack. Gain of 38dB at 10 MHz, 10 dB at 1000 MHz. Includes the custom matching case & knob set for a neat, professionally finished look. Case size 5"W x 1½"H x 5¼"D.

LPA1C	RF Linear Power Amplifier Kit With Case	$54.95
LPA1WT	Factory Assembled & Tested LPA1 With Case And Power Supply	$119.95
AC125	110VAC Power Adapter	$9.95

Not Your Average Ordinary Web Site... Your Resource Center!

FCC Information
License Information
Reference Information
All The Facts About LPFM
How To Set Up Your Station!

www.ramseykits.com

FM Broadcast Antennas

The Secret To Maximum Performance, And Great Range!

WHAT'S MORE IMPORTANT THAN YOUR ANTENNA? Antenna height and antenna match are the two easiest things you can do to increase your reception range. The old adage, "If you want more signal, put your money in an antenna rather than power" is certainly true. We feature quite a selection of top quality antennas to fill the bill for any enthusiast's needs - from the hobbyist to the commercial broadcaster serving thousands.

"The 3 most important factors in your broadcast system: Antenna, Antenna, and Antenna!"

The most efficient...and least expensive way to increase your range and signal quality!

For complete specs, visit us at www.ramseykits.com

KIT

Tru-Match FM Antenna

Rugged PVC Construction... Keeps The Weather Out!

✔ Fully weatherproof - rugged pvc construction
✔ Matches 50 or 75 ohm systems
✔ Tunable for perfect match over the entire 88 to 108 MHz FM band

We've been besieged with calls asking us where to get a good quality FM Broadcast antenna. Remember, matching your antenna to your transmitter is the single most important link in your transmitter setup - and a good antenna and match are the secret to getting maximum range.

When we say "match" we mean electrical impedance match... if the proper impedances are not maintained between transmitter and antenna, power is reflected away from the antenna and back into the transmitter! This can cause the final amplifier stage to be damaged, not to mention spurious signals and lousy range. Buy this kit and get the most from your FM Broadcaster!

TM100   FM Broadcast Low Power Antenna Kit (25 W Max)   **$69.95**

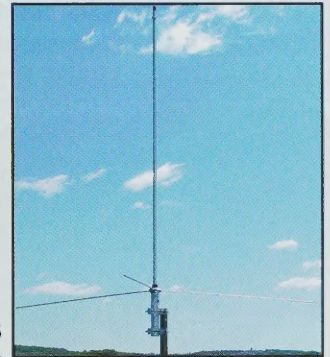# 5/8 Wave Colinear Vertical FM Antenna

✔ 5/8 wave for excellent gain and maximum range
✔ Field adjustable for a perfect match
✔ 3.4 dB gain effectively doubles your power!

KIT

Precision Tune To Your Exact Frequency For A Perfect VSWR!

This is probably the most popular antenna we sell. Why? Let's start with the proven omnidirectional ground plane design, clean rugged construction, and how about easy mounting? The 5/8 wave design keeps your signal low to the horizon and not uselessly radiating up into space - great if your listeners are on the space shuttle, but the pits for the folks out at the edge of town! Imagine a donut shaped pattern of signal radiating from your antenna. For the most range out to the horizon, we need to "squish" that pattern flatter to squeeze more signal out to the horizon - and that's what this antenna does. Super easy to assemble and mounts to any common antenna mast. Has the common SO-239 style connector available anywhere and looks that just can't be beat. Try one and see if you don't agree that it's one heck of an antenna for the money! Height: 7' 7" 200 watt power rating.

FMA200	5/8 Wave Colinear Antenna, 200W Max	$129.95
FMC50	50' Low Loss LMR400 Coax, PL259/Type-N Connectors Preassembled	$125.00
FMC100	100' Low Loss LMR400 Coax, PL259/Type-N Connectors Preassembled	$200.00

KIT

Log Periodic Directional FM Antenna

Professional Quality, Log Periodic Design!

✔ Horizontal or vertical polarization
✔ Quadruples your transmit power!
✔ Directional pattern ideal for putting signal where you want it!
✔ 2 versions: semi-pro and heavy duty professional grade
✔ All elements at DC ground for excellent lightning protection
✔ Greater than 7 dB gain and 15 dB front to back ratio!

We developed this antenna for those applications where you don't need to provide omnidirectional coverage.
Where, you might ask? When you are on the edge of town and you want to concentrate your signal into the most populated area, why waste signal on the outskirts? Your signal is directed into the forward path with a multiplying effect of over 4 times while the signal coming off the back is reduced by over 30 times! The log-periodic design is wideband over the entire FM band meaning that you don't have to retune the antenna when you change frequencies. Also, the antenna is designed to be at DC ground which means a lot when you're in a thunderstorm prone area! Two versions are available to satisfy the semi-commercial operator and the full-fledged professional. Professional version uses solid aluminum elements and booms while the semi-pro uses hollow elements and extruded boom. Longest element 71" boom 45". Includes mounting brackets for horizontal or vertical use.

FMA300	Log Periodic Directional Antenna, 300W Max	$379.95
FMA400	Heavy Duty Log Periodic Antenna, 1000W Max	$429.95

Next Generation IR Illuminated Waterproof CCD Cameras (Wired & Tested)

NEW FOR 2004!

✔ Super long range IR illumination!
✔ Waterproof to 50M!
✔ Attractive, scratch-proof, non-corrosive brass housing
✔ Fool-proof interfaces...BNC video & power
✔ Universal mount

Latest Long Range IR Illumination Technology... SEE IN THE DARK!

SPECIFICATIONS	CCD328	CCD329
Pick-up element:	1/3" super	1/3" super
Number of pixels:	512 x 492	512 x 492
Resolution:	380 TV lines	380 TV lines
Min. illumination:	0.0001 Lux /F2.0	0.0001 Lux /F2.0
S/N ratio:	>50dB	>50dB
Electronic shutter:	1/60 to 1/100,000	1/60 to 1/100,000
Video output:	75 ohm	75 ohm
Video connection:	BNC female	BNC female
IR Illumination:	21 high output LED	49 high output LED
IR Range:	60 feet	90 feet
Lens:	4.3mm F2.0	4.3mm F2.0
Power:	DC 12V 190mA	DC 12V 540mA
Power connection:	2.1mm female	2.1mm female
Dimensions:	2.0" W x 2.75" L	2.75" W x 3.2" L

These brand new cameras represent the latest technology in built-in IR illumination! New for 2004, the CCD328 and CCD329 offer total darkness IR illumination range longer than was ever possible before! How long? How does 60' and 90' sound?! They feature the newest LED devices that run much cooler as compared with the earlier generation IR LED's. This coupled with an exclusive power control technology gives you years of long life, non-degraded operation.

The cameras utilize the latest super sensitive 1/3" color CCD sensors and a built in 4.33mm lens. The lens is surrounded by one of these new IR illumination LED's with an automatic light sensor to automatically turn them on and off. The CCD328 features 21 IR LED's to provide an illumination range of 60 feet, while the CCD329 features a whopping array of 49 IR LED's to provide a range of 90 feet! All IR night modes are automatically switched to B&W!

It gets even better! The camera is totally waterproof and submersible to 50 meters! The housing is constructed of brass, and all fittings are non corrosive. The video/power pigtail is sealed to 50m depth and is made of non-stretchable material to withstand heavy underwater pressure! The low-heat power controlled LED's provide fog-free operation.

The sleek brass housings have a heavy dark gray scratch proof powder coating to match any decor and to give you a long lasting attractive installation. The universal mount swivels for all mounting possibilities. Video connection is a standard BNC female, and the 12VDC power connection is a standard 2.1mm female power connector. *(These are great! We put one outdoors to watch our dark parking lot at night...incredible!)*

CCD328	Waterproof Color Camera, 60' IR Illumination Range	$179.95
CCD329	Waterproof Color Camera, 90' IR Illumination Range	$199.95
AC125	110VAC Power Supply	$9.95

Professional Long Range Outdoor Color IR Camera

NEW FOR 2004!

The ULTIMATE Outdoor Low Light Camera!

✔ Extended IR illumination exceeds 150'!
✔ Weatherproof and gastight housing
✔ Wide temperature range 0°F to 200°F

If you're looking for a PROFESSIONAL quality outdoor camera with long distance IR illumination, this is it! The CCD330 is designed from the ground up to exacting outdoor performance specifications and can withstand the harshest environmental conditions with its custom outdoor housing.

SPECIFICATIONS	
Pick-up element:	1/3" Super View Sensor
Number of pixels:	537H x 505V
Resolution:	380 TV lines
Sensitivity:	.05 Lux, 0 Lux with IR on
S/N ratio:	Greater than 58 dB
Electronic shutter:	1/60 to 1/120,000 sec.
White balance:	2000-10,000°K
BLC:	More zones auto function
Gamma correction:	0.45
Sync system:	Internal
Video Output:	Composite 1.0V P/P at 75 ohm
Lens:	25mm/F1.8 auto adjusting focus
IR Illumination:	High-luminance LEDx12/condensing lens
IR wavelength:	850mm
IR distance:	Greater than 50m
IR triggering:	CDS activating at 10 Lux
LED life:	Greater than 20,000 hours
Waterproof level:	IP-66
Connectors:	Video BNC Female, power 2.1mm
Power:	DC 12V 450mA
Dimensions:	13" L x 3.75" D

The camera features a 1/3" Super View image sensor for the highest quality picture under the lowest lighting conditions. The front of the camera is surrounded with a large array of patented 4-leg IR high-power LED illuminators. When automatically activated by low light levels, these special illuminators provide an illumination distance that exceeds 150 feet! Combine all this with a specially designed 25mm f1.8 auto focus lens and a unique coating to prevent IR illumination focus shift, and you have the best of all worlds! Sealed housing is designed for weathertight, gastight, and fog-free operation from 0°F - 200°F without the use of fans or heaters! Can be mounted with any standard ¼ x 20 stud mount. A sealed compression fitting brings the cable out of the rear of the camera to a standard BNC female video connector and 2.1mm female 12VDC power connector.

If you want the ultimate picture quality and the longest distance IR illumination, the CCD330 is the camera for you! *(We're going to mount one of these at the top of the light pole behind our building...but I can't find anyone here to shinny up the pole!)*

(Wired & Tested)

CCD330	Professional Outdoor Color Camera with Built-in 150' IR Illumination	$399.95
AC125	110VAC Power Supply	$9.95

VIDEO CAMERAS & ACCESSORIES

Waterproof Color & BW Bullet Cameras with Built-In IR Illumination!

Wired & Tested

✔ Day & night monitoring! CCD color image automatically changed into B/W image in the dark!
✔ High output built-in IR illumination for B&W nighttime use
✔ Weatherproof black anodized aluminum housing for outdoor use
✔ Fool-proof interfaces...BNC video & power

Yes...We Said COLOR Plus IR Illumination!!

SPECIFICATIONS		
	CCD309	CCD308
Pick-up element:	1/4"	Sony 1/3"
Number of pixels:	512 x 492	542 x 492
Resolution:	350 TV lines	420 TV lines
Min. illumination:	0.0 Lux	0.0 Lux
S/N ratio:	46dB	46dB
Electronic shutter:	1/60 to 1/100,000	1/60 to 1/100,000
Load Impedance:	75 ohm	75 ohm
Standard board lens:	3.6mm, F2.0	6mm F1.8
Power:	DC 12V 150mA	DC 12V 180mA
Dimensions:	2.0" W x 3.2" L	2.0" W x 3.2" L

Talk about the best of both worlds! High quality COLOR video camera, PLUS nighttime B&W video camera, PLUS built-in high output IR Illumination, PLUS auto mode switching...all in one unit!

You've seen bullet cameras before, but never like this. Yes, it's a high quality color CCD camera during the day. Once the light level falls below minimum requirements, it automatically changes to an IR B&W camera, and turns on the built-in TEN IR illuminating LED's to see in the dark! Now you don't have to sacrifice color operation because you need total darkness coverage at night. You can have both, in one camera!

That's not all! Just look at the case. Jet black solid aluminum case that's WATERPROOF to IP57 standards! Yes, that includes temporary complete immersion in water! All angle, built-in swivel mount provides you with any mounting configuration you may need. Connections are simple. No solder connections needed; the waterproof cable terminates video with a professional BNC female connector, and provides a standard 2.1mm DC power connector. Simply plug it in!

CCD321

It only gets better... Take the same camera and with a mere switch closure get 2X digital zoom! That's right, our CCD321 also includes 2X digital zoom, and we even provide a high quality pushbutton switch for it! You'll be amazed; set up the camera for your wide angle view and with a click of the switch you have 2X! And you do that at the cable end, not at the camera! Don't need color but want the same high-end housing and built-in IR Illumination in a Hi Resolution B&W unit? No problem, use the CCD308 *(I set one of these up for our webcam, pushed the button, and saw one of our people sleeping at the bench!)*

CCD309	Waterproof Color Bullet Camera with Built-in Auto Switching IR Illumination	$169.95
CCD308	Waterproof B&W Bullet Camera with Built-in Auto Switching IR Illumination	$109.95
CCD321	Waterproof Color Bullet Camera with Built-in Auto Switching IR Illumination, 2X Remote Zoom	$239.95
AC125	110VAC Power Supply	$9.95

High-Res Weatherproof "Lipstick" Cameras

Wired & Tested — **NEW for 2004!**

CCD340
CCD341
CCD342

Welcome To The Super Resolution Department!

Looking for the highest quality "lipstick" or "bullet" cameras, but don't want to pay a fortune? These are the cameras for you! All feature Sony manufactured CCD sensors for the highest quality and reliability.

✔ Three models: color Super EX-View, B&W hi-res, or B&W Super-HAD
✔ Small lipstick design
✔ Universal Swivel Mounting Bracket
✔ Weatherproof, Suitable for Outdoor Use!
✔ Simple Plug-In Connections

Sony EX-View color CCD sensor in the CCD340 provides the highest resolution and sensitivity available. Formerly only available in larger and much more expensive cameras, the EX-View is perfect when you want the finest picture quality possible. Great for medical coverage, precision inspection, or detailed surveillance use.

The standard B&W sensor in the CCD341 provides an above-average 420 line resolution. This is great for general purpose use and actually exceeds the resolution of the typical low cost black & white surveillance camera.

SPECIFICATIONS			
	CCD340	CCD341	CCD342
Format:	NTSC Color	EIA B&W	EIA B&W
Pick-up element:	Sony 1/3" EX-View	Sony 1/3"	Sony 1/3" HAD
Number of pixels:	768x494	512x492	768-494
Resolution:	480 TV lines	420 TV lines	600 TV lines
Min. Illumination:	0.05 Lux	0.1 Lux	0.2 Lux
S/N ratio:	>50dB (AGC off)	>46dB (AGC off)	>48dB (AGC off)
Electronic shutter:	1/60 - 1/100,000	1/60 - 1/100,000	1/60 - 1/100,000
Impedance:	75 ohm	75 ohm	75 ohm
Lens:	3.6mm	3.6mm	3.6mm
Connectors	BNC/Power	BNC/Power	BNC/Power
Power:	DC 12V/130mA	DC 12V/120mA	DC 12V/120mA
Dimensions:	3" L x 0.8 "H	3" L x 0.8 "H	3" L x 0.8 "H

The CCD342 is a super-high resolution Black & White camera designed with a Sony CCD Super HAD sensor that provides 600 TV lines of resolution. This is perfect where exacting fine detail is required and color is not necessary. Yes, we said 600 lines!

All cameras feature a waterproof housing and a universal swivel mount. Video is brought out to a BNC female and power is brought out to a standard 2.1mm female connector. If you're looking for high quality and performance but don't want to pay a fortune, these are for you!

CCD340	Color Super Hi-Res Lipstick Camera, EX-View CCD Sensor	$189.95
CCD341	B&W Hi-Res Lipstick Camera, Sony CCD Sensor	$69.95
CCD342	B&W Super Hi-Res Lipstick Camera, Sony Super-HAD Sensor	$99.95
AC125	110VAC Power Supply	$9.95

Vari-Focal High Performance Cameras

Wired & Tested **NEW FOR 2004!**

Built-In VariFocal Lens!

✔ Variable field-of-view
✔ DSP technology
✔ Operates on 12VDC or 24VAC
✔ Attractive design

CCD333
CCD334

CCD335
CCD336

How do you improve a sleek CCD camera with a high quality Sony Super HAD image sensor? Simple, you add a variable focal length lens to it! That's right, these little beauties that measure less than 2" have a built in Vari-Focal lens! Now for the first time, the installer can preset the field-of-view without changing the lens!

These are available in either color or black and white, and both are available with two different Vari-Focal lenses. Select the 3.5-8mm lens for a wider angle of view, or the 9mm-22mm lens for close-up view. Both lenses feature DC drive Iris control. All models feature switchable back-light compensation, automatic electronic shutter, and AGC. Cameras operate on your choice of 12VDC or 24VAC with rear screw terminals. Video connection is a standard rear-mounted BNC female. These cameras are intended for indoor use, and their unique attractive style blends in well in any environment!

SPECIFICATIONS	CCD333/334	CCD335/336
Format:	NTSC Color	EIA Black & White
Pick-up element:	1/3" Super-HAD	1/3" Super-HAD
Number of pixels:	512 x 492	512 x 492
Resolution:	380 TV lines	420 TV lines
Min. illumination:	0.2 Lux /F2.0	0.1 Lux /F2.0
S/N ratio:	>48dB	>48dB
Electronic shutter:	1/60 to 1/100,000	1/60 to 1/100,000
Video output:	75 ohm	75 ohm
Video connection:	BNC female	BNC female
Lens:	3.5-8mm/F1.6 9-22mm/F2.0	4.3mm F2.0
Power:	DC 12V 230mA AC 24V 200mA	DC 12V 215mA AC 24V 200mA
Power connection:	Screw term	Screw Term
Dimensions:	2.0" Wx1.8"Hx6.1"L	2.0" Wx1.8"Hx6.1"L

CCD333	Color VariFocal CCD Camera, 3.5-8mm Lens	$169.95
CCD334	Color VariFocal CCD Camera, 9-22mm Lens	$179.95
CCD335	B&W VariFocal CCD Camera, 3.5-8mm Lens	$139.95
CCD336	B&W VariFocal CCD Camera, 9-22mm Lens	$149.95

Miniature Enclosed Cameras With IR Illumination
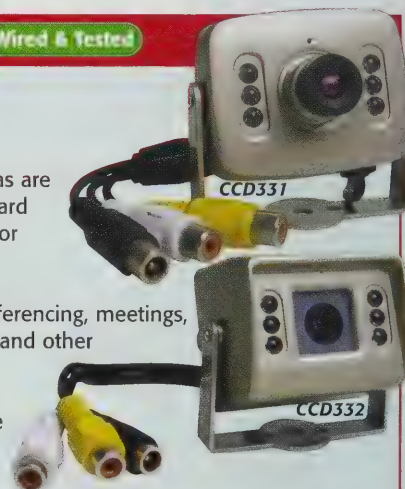
NEW FOR 2004! **Wired & Tested**

✔ Low cost, high performance
✔ Built-in IR illumination
✔ Universal swivel mount

Also Great For WebCams!

Looking for inexpensive color or black and white cameras? We've got just what the doctor ordered! These cameras are housed in a slick aluminum housing with a self contained swivel bracket. Inside is a high quality color or B&W board camera and lens. But it doesn't stop there! Six IR LED's provide infrared illumination in the dark! Automatic sensor switches the illumination when ambient light level falls below 3 Lux.

Both cameras feature 1/3" CMOS image sensors for high quality images. These cameras are perfect for video conferencing, meetings, and collaborations, and feature a built-in microphone. They can also be used for computer based picture-phones and other video/audio telecommunications applications.

A built-in harness brings video and audio out to an RCA female connector and power to a standard 2.1mm female power connector. Both operate on 12VDC at 120mA. A super camera at a super price!

CCD331
CCD332

CCD331	Miniature Color CCD Camera with IR Illumination	$69.95
CCD332	Miniature B&W CCD Camera with IR Illumination	$59.95
AC125	110VAC Power Supply	$9.95

Miniature Enclosed B&W Camera

Wired & Tested **NEW FOR 2004!**

Miniature Board Camera... Without The Exposed Board!

✔ Universal mount
✔ Self contained, ready to use!
✔ Operates on 12VDC

This is the no-hassle black and white camera! Like the IR units above, the CCD339 has a PCB camera/lens mounted in its own very special enclosure. 1/3" CCD sensor provides high quality images with high sensitivity, low smear, and blooming suppression. The board camera also features auto electronic shutter and auto gain control.

Video is brought out to a BNC female connector and power is brought out to a standard 2.1mm female connector. A built-in swivel bracket is attached to satisfy virtually any mounting configuration. No more hassles trying to mount and connect a board camera; just plug it in! Runs on 12VDC.

CCD339	Miniature B&W CCD Camera	$49.95
AC125	110VAC Power Supply	$9.95

Super CCD Board Camera Modules *NEW FOR 2004!*

✔ EX-View, color, or black & white models!
✔ Fool-proof interfaces...professional connectors AND wire leads!
✔ Great S/N and resolution!
✔ Small compact size

Wired & Tested

Wide Variety... Color or B&W!

SPECIFICATIONS	CCD337	CCD302	CCD338
Format:	NTSC Color	NTSC Color	EIA B&W
Pick-up element:	Sony 1/3" EX-View	Sony 1/3"	Samsung 1/3"
Number of pixels:	768x494	512x492	510-492
Resolution:	480 TV lines	400 TV lines	380 TV lines
Min. Illumination:	0.05 Lux	0.2 Lux	0.1 Lux
S/N ratio:	>50dB (AGC off)	>48dB (AGC off)	>48dB (AGC off)
Electronic shutter:	1/60 - 1/100,000	1/60 - 1/100,000	1/60 - 1/100,000
Impedance:	75 ohm	75 ohm	75 ohm
Lens:	3.6mm	Pinhole	Pinhole
Connectors	BNC/Power 2.1mm	BNC/Power 2.1mm	BNC/Power 2.1mm
Power:	DC 12V/110mA	DC 12V/120mA	DC 12V/120mA
Dimensions:	1.5" x 1.5"	1.5" x 1.5"	1.26" x 1.26"

There are a lot of board camera modules out there but these are the cream of the crop! An inch and a half square or less, and all feature 1/3" image sensors (not ¼") for the highest quality images. And unlike a lot of board cameras, a simple quick-connect cable gives you power and video using standard connectors. Just plug it in! You simply have the very best best board camera value going!

CCD337 features the ultra high res Sony EX-View CCD sensor for over 480 lines of color resolution. If you want the finest detailed color images, the EX-View is the answer. The CCD302 features a standard Sony 1/3" color sensor for great images over 400 lines. The CCD338 features a Samsung 1/3" B&W sensor for high quality B&W images. The no hassle boards!

CCD337	Subminiature Color Super Hi-Res Board Camera, Sony EXView Sensor	$179.95
CCD302	Subminiature Color CCD Board Camera, Pinhole Lens	$132.95
CCD338	Subminiature B&W Board Camera, Pinhole Lens	$59.95
AC125	110VAC Power Supply	$9.95

Wired & Tested

Automatic Motion Sensing Camera Setup with IR VCR Recording

Senses Motion & Turns On Your VCR!

✔ Built-in Motion Sensor
✔ Automatic VCR Recording!
✔ Complete System, Includes Everything!

Many of us who have been eyeing security cameras for our homes or small businesses have hit upon a fundamental problem. Once you get everything wired up, how do you record? For some the answer is watching hours and hours of wasted video tape to get to the action. Others spend thousands on time-lapse or other special VCRs. But now, there's a perfect solution for all of us! This amazing camera actually senses motion, then triggers your regular home VCR to start recording any time something happens! Not only that, it automatically stops recording soon after the movement ends! And it works with your regular home VCR! Just connect your VCR to the camera, plug in the included power supply, and run the included 50ft wire to the camera. Next, place the infrared light with the suction cup on the front of your VCR. Take a minute to set the code for your VCR (Almost all VCRs are supported) by setting a few switches on the back of the camera. That's it! You now have a complete security system that will rival systems costing thousands! We were stunned by this camera. It's so easy to set up, works so perfectly, and the automatic recording alone is enough to make you drool over this camera. But, there's more in this black and white model! It also includes a built-in INFRARED ILLUMINATOR! No light required!

SPECIFICATIONS	CCD313	CCD314
Pick-up element:	Sony 1/3"	Sony 1/3"
Resolution:	525 TV lines	525 TV lines
Min. Illumination:	0.0 Lux	0.5 Lux
S/N ratio:	45dB	45dB
Electronic shutter:	1/60 - 1/100,000	1/60 - 1/100,000
Impedance:	75 ohm	75 ohm
Lens:	3.7mm	3.7mm
Connectors	Direct	Direct
Power:	Included	Included
Dimensions:	2.3"W x 5.2"H x 2.4" D	2.3"W x 5.2"H x 2.4" D

CCD313	Complete Motion Sensing B&W Video Camera Setup	$119.95
CCD314	Complete Motion Sensing Color Video Camera Setup	$149.95

Complete BW IR Illuminated Camera Kit

Wired & Tested

✔ Built-in IR illumination!
✔ All Set and Ready to Go!

Everything Is Included...At A SUPER Price!

An entire wired camera solution, with infrared illumination, at this price? You bet! This small, attractive looking camera packs a ton of features at an unheard of price. The camera is mounted on a swivel base for easy mounting, and even includes the hardware necessary to mount the unit. And the best part of all... infrared illumination on board!

That's right, this camera will be able to 'see' in complete darkness! At this price you'd expect to be sacrificing picture quality for the added features, but this camera has a crisp black and white image that is sure to impress. That's not all you get in this great package deal.

We also provide a power supply, and a full 60ft of high quality cable. Just plug in the power supply, and make the connections to your TV or VCR at one end, run the cable (Just ONE cable!) and plug it into the back of the camera. That's it! No complicated wiring!

CCD312	All In One B&W Self Enclosed Video Camera with IR Illumination, Cable and Power Supply	$59.95

Wired & Tested

Color and B&W Quad/Se...

Full Motion Quad Display!
Color or B&W

✔ Full Motion Qu...
✔ Automatic Seque...
✔ Professional Quality

CCDS311

This color, professional quad processor/switch really amazed us! It's simple to set up, but has all the ... you'd expect from units costing hundreds more. Plug in up to four color cameras or video sources, and ... played in FULL MOTION, in color, on one screen! Not sure which camera is which? No problem! Camera ID text gene... each camera view, plus the time! Want more? Has one touch freeze frame of any of the inputs, auto freeze and ... loss of signal, on-screen user menu provides all setup, ID generator, level and format functions. Plus independent ti... tings, 8 characters per channel with 3 character colors based on 16 million true colors, built-in bar generator for monit... setup, and VCR in to support 2x2 Zoom-In and freeze function for playback. It doesn't get much better than that!

CCDS310

Does all this overwhelm you, when all you need is a high quality monochrome quad/sequential switcher? We've got you covered there too! Our CCDS310 is similar to the color switcher above, but without all the bells and whistles. Made specifically for monochrome CCTV cameras or video sources, it provides the same quad display of up to four sources. Manual push button full screen selection of any input, quad display, or sequential display is all controlled from the front panel. Each input has separate video gain adjustments to set levels for a perfect view. Both units feature professional BNC video input connections.

CCDS311	**Professional Color Quad/Sequential Switcher**	**$269.95**
CCDS310	**Professional B&W Quad/Sequential Switcher**	**$119.95**

960 Hour Time Lapse VCR

Wired & Tested

✔ 24 Hours real-time recording!
✔ 1280 Hours time lapse recording (with T160 tape)
✔ DLC drum for increased head life
✔ Records audio as well as video (in 2, 6, 18 & 24 Hr modes)
✔ IR remote, self diagnosis, menu driven

Color Time Lapse With Audio!

SPECIFICATIONS

Recording
Recording method	Dual-azimuth 4-head rotating helical scanning system
Audio recording	In 2, 6, 18 and 24 hour modes
Tape speed	33.35m/sec (2 hour mode)
Specified video cassette tape	VHS 1/2 inch video cassette tape
Recording/playback time	2/6/18/24/36/48/72/96/120/168/240/360/480/ 720/960 hours (when using T-120 tape)
Fast forward/rewind time	Within 3 minutes (when using T-120 tape)
Television system	NTSC color TV system

Video
Recording method	Luminance signal: FM recording ~0.8V Down-converted subcarrier phase shift system
Video input	1 Vp-p, BNC, 75 ohm, unbalanced
Video output	1 Vp-p, BNC, 75 ohm, unbalanced
Horizontal resolution	Black & white mode 300 lines
	Color mode 250 lines

Audio
Input	RCA pin jack more than 47k ohm -8.8dBm, unbalanced
Output	RCA pin jack less than 1.5k ohm -7.8dBm, unbalanced
Microphone input	-60 dBs, 3.5mm mini jack, 10k ohm, unbalanced

Connectors
Alarm input	DC 4~5V(Open), DC 0~0.8V(Closed)/5.7k ohm
Alarm output	DC 4~5V(H), DC 0~0.8V(L)/5.7k ohm
Panic input	DC 4~5V(Open), DC 0~0.8V(Closed)/5.7k ohm
End output	DC 4~5V(H), DC 0~0.8V(L)/5.7k ohm
Warning output	DC 4~5V(H), DC 0~0.8V(L)/5.7k ohm
Series input	DC 4~5V(H), DC 0~0.8V(L)/5.7k ohm
Series output	DC 4~5V(H), DC 0~0.8V(L)/5.7k ohm
Switch output	DC 4~5V(H), DC 0~0.8V(L)/5.7k ohm
Common	0V(GND)

Other Specifications
Operating temperature range	41°F - 104°F
Operating humidity range	80% or less
Power requirements	AC 90-240V~ , 60hz
Power consumption	17W
Dimensions	360(W) x 90(H) x 289(D)
Weight	approximately 4.3kg

Finally, Time Lapse recording made affordable for everyone, and without sacrificing a bit of quality! Standard VHS tapes are used in our CCT960. And get ready for this one...on a standard T-120 tape you can record up to 960 hours of video! Use a T-160 tape and you can record a whopping 1280 hours on one tape! And you can play those back in the standard 120 or 160 minute modes! Things may tend to move a tad bit quickly though! No problem; you can slow down the playback to the corresponding record time for real time images.

And it gets even better! The CCT960 even records audio in the continuous modes. That's right, you can have up to 24 hours of color video and audio time lapse recording on one T160 tape! This is not a modified VHS VCR, but one made from the ground up for time lapse and security use. Heavy duty 4 Head DLC drum gives you increased head life for the continuous duty operations normally used with these units. On-screen menus provide full control and setup functions, and are accessed by the IR remote control included. You can program timed start and stop recording, or external alarm input recording. We've got one of these running on our webcam in the 960 hour mode, and it's incredible how fast we get stuff done! (Or does it take us 960 hours to do something that should take 2!)

Hours T-120	Hours T-160	Record Fields/Sec	Record Interval	Audio Recording	Tape Motion
2 (SP)	2.67	1/60 Sec.	60	Yes	Continuous
6 (EP)	8	3/60 Sec.	60	Yes	Continuous
18 (EP)	24	3/60 Sec.	20	Yes	Continuous
24 (SP)	32	0.22	5	Yes	Continuous
36 (SP)	48	0.32	3.33	No	Intermittent
48 (SP)	64	0.42	2.50	No	Intermittent
72 (SP)	96	0.62	1.6	No	Intermittent
96 (SP)	128	0.82	1.25	No	Intermittent
120 (SP)	160	1.02	1	No	Intermittent
168 (SP)	224	1.42	0.71	No	Intermittent
240 (SP)	320	2.02	0.5	No	Intermittent
360 (SP)	480	3.02	0.33	No	Intermittent
480 (SP)	640	4.02	0.25	No	Intermittent
720 (SP)	960	6.02	0.17	No	Intermittent
960 (SP)	1280	8.02	0.13	No	Intermittent

CCT960	**960 Hour Color Time Lapse VCR, Factory Assembled & Tested**	**$399.95**

Vehicle and Und...

✔ DSP waterproof col...
✔ Automatic low li...
✔ 5.6" color TFT...
✔ Submersibl...

CAMERA
TV System...
Image S...
Image...
CC...

...llest Video Transmitters   *Wired & Tested*

The Size Of A Quarter?
You Bet!

...ou can hide under a quarter and only as thick as a stack of four pen-
...ality - almost like a direct wire connection to any TV tuned to cable
... drift with performance that equals law enforcement models that cost hundreds

... the high power 100 mW unit goes up to 1/8 mile. Units run on 9 volts and hook up easily to
...mera modules have been tested to mate perfectly with the Cubes and work great with solid, trou-
... - just hook-up power and you're on-the-air with a killer system! *These new quarters are ugly!*

Winter Super Sale Expires 01/15/04

C2000	Cube Video Transmitter, Factory Assembled and Tested	**$79.95**	$99.95
C2001	High Power Cube Video Transmitter, Factory Assembled and Tested	**$109.95**	$139.95

Infrared Illuminator

✔ Great for Do-It-Yourself Camera Projects
✔ Amazing Illumination!

KIT

Don't Let Darkness Dim Your View!

Imagine being able to see in total darkness! It's easy with one of our CCD video cameras and this neat-o IR illuminator! There's nothing magic about this kit - it's just an array of 24 high intensity IR LEDs and appropriate drive circuitry. The real magic is in the CCD video camera. CCD sensors are sensitive to IR light that you can't see, thus illuminate the scene with IR and the camera 'sees' just fine. The whole array will illuminate similar to what you'd expect of a bright flashlight.

Winter Super Sale Expires 01/15/04

IR1	IR Illuminator Kit	**$24.95**	$29.95
AC125	110VAC Power Supply	$9.95	

Camera Interface Board

✔ Onboard microphone!
✔ Provides regulated power, video & audio!

Connect That Board Camera With Ease!

KIT

Here's a nifty little board that really simplifies direct wired connection of your CCD camera module to any video monitor, VCR or video input TV set. The board provides: a clean 9 or 12 volt (your choice!) regulated and filtered source to power the camera (CCD Cameras require a stable source of power for best operation), a sensitive electret condensor microphone and audio preamp for great sound pick-up and standard RCA Phono jacks for both audio and video outputs. Power required is 11 - 20 VDC at 150 mA; our AC125 wall plug adapter works great for running cameras off the AC line current.

IB1	Camera Interface Board	**$16.95**	$19.95
AC125	110VAC Power Supply	$9.95	

Automatic Sequential Video Switcher

✔ Automatic Switching of 4 Video Sources
✔ Variable Speed
✔ Manual Camera Selection

KIT

Don't Miss A Beat...
Watch 4 Cameras At Once!

Now you can monitor up to four video cameras or other video sources on one video monitor. The AVS10 will automatically sequentially switch between inputs one through four, and display the output on a video monitor. Perfect for multiple video camera installations, stores, household surveillance systems, and more. Has (4) RCA inputs for video input, and one RCA output connector, so you can use standard consumer video cables. Variable front panel timing control allows you to change the viewing time for each sequential view. Change it from fast to slow depending on your requirements! If you see a view you need to study you can manually select that input for constant monitoring. Case measures 5"W x 1½"H x 5¼"D. *(If you don't want to build it, see Page 15 for Quad units!)*

AVS10C	Automatic Video Sequencer Kit With Case	$44.95
AC125	110VAC Power Supply	$9.95

VHF TV Transmitter

KIT

Learn How A TV Transmitter Works!

✔ Transmits on Channel 2-6
✔ Broadcast your VCR Throughout Your House
✔ Learn While Building!

This great little kit allows you to send any audio and video source (like a VCR or TV camera) to any TV set for up to 300 feet. Have your own TV station with YOU playing producer and YOUR selection of programming! And, the nice feature of this kit is that you'll learn just how a TV transmitter works; we explain every part of the circuit from A to Z. Tunable to any TV channel 2 - 6, runs on 12 VDC, and accepts standard audio and video signals. Includes an attractive custom case for a finished look!

TV6C	VHF TV Transmitter Kit With Case	$39.95
AC125	110VAC Power Supply	$9.95

Walking Electronic Bug

NEW FOR 2004!

✔ Avoids obstacles!
✔ Turns in response to light!
✔ Fights with other "Bugs"!
✔ Blinking LED eyes

KIT

THIS Bug Doesn't Eavesdrop...It Crawls!

A lot of people have asked us to develop a really good bug. We put our engineers on the project and the next thing I knew there were these creatures crawling around the floor in the production area! I said *"Hey, what are all these"* and the engineer said *"well, you wanted a really good bug, but we didn't want another Federal raid, so we designed the kind that walks instead of the ones that listen"!* He had a point! This little guy is really neat! Built around a couple subminiature vibrating cell phone motors, he wanders around looking for things to bump into! No problem there; sensors below his blinking eyes sense obstacles and make him turn away! Likewise, you can steer him around with flashlights or laser pointers! Travel direction and pattern is customized with separate speed and sensitivity controls. Runs on two "N" batteries (not included). This is a fun kit that is guaranteed to keep you amused, at least until the batteries die or the dog kills it! *(I took one of these home, and my Chocolate Lab didn't touch it...she chewed up my glasses instead!)*

WEB1	Walking Electronic Bug Kit	$29.95

Rat Blaster Varmint Repeller

KIT

Eliminate Them...Without Harm!

✔ Covers over 3,000 square feet
✔ Programmable frequencies for optimum repulsion
✔ Compare with units costing $150

Sure, you've seen these things advertised before. Big claims and a huge price! Well we won't carry on about how you'll be able to keep Godzilla out of your garbage cans, but we will say that this unit will do a nice job of keeping the neighborhood dog, cat, or deer away. Here's the story. We had a problem at the boss's house keeping the deer out of the garden. The boss, being the electronic nut he is, bought one of these things and tried it. It worked pretty well so he planned to get another for protecting the shrubs, but at $150 a box he figured it was cheaper to build his own.

Here it is, cheaper and better! We've increased the power, put in a top-quality transducer (by Motorola), better frequency range and made it affordable. A lot of customers prefer to build it into their own case (or even a garage or shed wall!) so we offer the the custom metal case shown as a separate option. Runs on 12 VDC or use our AC adapter. *(Hum-m-m, I wonder if this will work on kids!)*

RB1	Rat Blaster Rodent and Animal Repeller Kit	$59.95
CRB	Matching Case & Knob Set for RB1	$29.95
AC125	110VAC Power Adapter	$9.95

Speedy Personal Speed Radar Gun

KIT

✔ Direct readout in miles/hour, kilometers/hour or feet/second
✔ 1/8 mile range for average car-sized object
✔ Earphone output to hear actual Doppler shift
✔ The nation's #1 science fair project!

YOU Be The Cop! How Fast Was He Really Going??

Here's a kit that's not only tons of fun for everyone, but useful too! This low cost microwave radar uses the same principle found in police units costing thousands more. You'll turn heads when you clock cars, planes, runners, boats, horses, bikes, races or virtually anything that moves. Speed readout is on two LED displays which can be set accurately (better than 1%) to show MPH, kilometers-per-hour, or even feet-per-second. An earphone output allows you to actually hear the Doppler frequency shift of moving objects - the theory upon which all radars operate.

Uses two 13 oz. coffee or juice cans for antenna (not included)... so start drinking! Antenna unit can be remoted up to 300 feet away. The SG7 is easy and informative to build. Our detailed manual not only carefully guides you to a finished unit, but tells you the hows and whys of Doppler radar. Even though the kit employs microwave circuitry, no exotic tuning is needed. All critical sections are PCB stripline and calibration is as easy as pointing the SG7 at a fluorescent lamp! Your Speedy kit includes a deluxe black ABS plastic case with SPEEDY graphics for a neat professional look. Operates on 12 VDC. Electronics case: 3 5/8" x 5 3/4" x 1 1/8".

SG7	Speedy Personal Speed Radar Gun Kit *(Price Reduced, was $99.95! Save $40 and Learn Radar!)*	$59.95
AC125	110VAC Power Adapter	$9.95

For years, the Speedy has been the top Science Fair kit!

Give students the opportunity to learn the basics of radar while building a super-fun kit!

High Intensity SMT Blinky Kit

NEW FOR 2004!

✔ Super bright SMT LED's
✔ Subminiature board, perfect for displays
✔ Operates from 6 VDC with included cells
✔ Learn SMT the FUN WAY!

Super Bright... Super Small!

What can be said about a Surface Mount blinky kit? The BL2 is the revival of our classic BL1 blinky kit in a new modern form! Yes, two LED's that blink, just like our original blinky kit that has made us famous, but this one is subminiature, and is designed with SMT components! Why, you ask? Besides the obvious, a really neat, super bright attention grabbing display, there's no better way to learn how to work with SMT components! Don't worry, we even include spare SMT chips for when you goof up!

When complete, the BL2 provides alternating super bright red and blue LEDs. Runs on 6VDC, and we include four LR44 button cells and a cell holder to mount on the backside of the board. It's one complete unit! If you don't want SMT LED's you can also use regular T1¾ LED's (included). If you want to learn what SMT is all about, the BL2 is for you! While you're at it, you might want to check out the magnifiers in our tools section on page 55. You'll need them! *(You'll definitely want to keep your reading glasses handy when you build this one!)*

BL2   **High Intensity SMT Blinky Kit**   **$17.95**

Blinky-Eyes Animated Display

NEW FOR 2004!

✔ Blinking Eye display of 66 super bright LED's!
✔ Microcontroller controlled
✔ Changes brightness with ambient light levels
✔ Animated with constant motion!

A Real Eye Catcher!
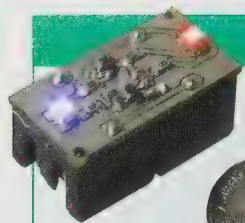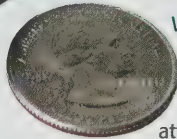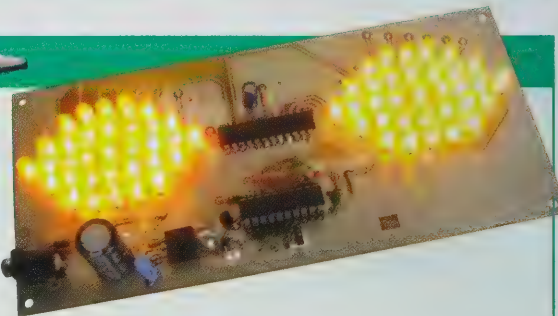
The ultimate animated LED kit that will dazzle you and delight your friends! Uses a microcontroller to randomly select from many different animations such as a long pause before a wink, or a twinkle of the eye to startle passers-by. A perfect kit if you want to light up a costume, window, or pumpkin with a scary repertoire of modes!

Four modes to satisfy any enthusiasts desires: 1. Off for long random periods, then blinks or winks. Designed to scare! 2. On for long periods before performing an animation, perfect for costumes and displays! 3. Animates all the time for constant motion, perfect display attention-getter. 4. Random fire! When placed in a pumpkin will light the pumpkin like there was a fire within! Truly awesome!

As if this weren't enough, the BE66 can also control a small hobby motor to shake bushes at random intervals or signal an external player to make a scary sound! Also has a CDS cell to sense light. In one mode the display will dim as it gets dark for battery operation, and the other it will turn off when too bright so it plays only in darkness! *(No boring, do-nothing twinkle kit here! You have to see it to believe it!)*

BE66   **Blinky-Eyes Animated Display Kit**   **$59.95**

SMT Multi Color Microprocessor Blinky

✔ Bright full color LED, red, green, and blue elements
✔ 8 Pin Microcontroller
✔ Operates from 6 VDC to 12 VDC
✔ Extra SMT components are included!

Learn SMT With The Latest Technology LEDs!

Don't let the old title "blinky" scare you away from this marvelous little kit! It was originally designed as a way to show off the latest technology in RGB (Red, Green, Blue) full color LEDs while providing kit builders with a fun and economical SMT practice kit.

Uses PWM methods to generate any color with a simple 8-pin microcontroller, with switchable speed selection as well! The dual jumper control system tells the microprocessor what scanning speed is desired for a full cycle of 16,777,216 possible colors from the LED! It randomly selects different color scanning modes to wow any observer to the point of distraction. This little attention getter is fun to build and has loads of possible applications. The SBRGB is a perfect attention getter for sales displays, name badges, and beanies.

Operates from 6VDC to 12VDC, and will run continuously on a standard 9V battery for several days! And if you're new to SMT technology, don't worry, we include extra SMT components to cover your mistakes! You may wonder why you would pay 30 bucks for a blinky kit! Wait till you see the LED smoothly change colors in front of your eyes! *(30 bucks is nothing, if you only knew what the development costs were!)*

Note: This kit utilizes Surface Mount Technology components. These are extremely small, and require magnifying glasses and proper soldering irons. Check these out on page 55.

SBRGB1   **SMT Multi Color Microprocessor Blinky Kit**   **$29.95**

High Power LED Strobe Light

✔ Everlasting LED's won't burn out!
✔ Variable flash rate or audio trigger!
✔ Bass or treble trigger modes!
✔ Use as a stroboscope for stop action effects!
✔ Safe low voltage construction-no high voltage or fragile Xenon tube to break!

Winter Super Sale Expires 01/15/04

KIT

Dance To The Beat...

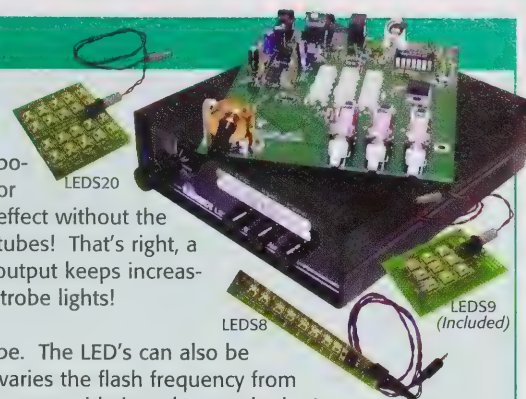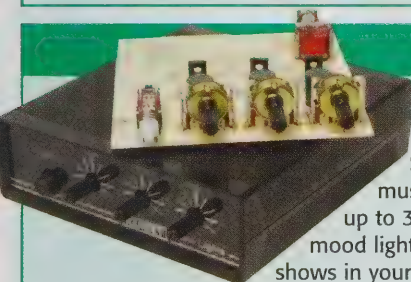Everyone has seen Xenon strobo-scopes "stop" a spinning quarter or flash to music. Now you can get the same effect without the expense and hassle of high voltage Xenon tubes! That's right, a strobe without a Xenon flash tube to break! The price of super bright LEDs keeps falling as their light output keeps increasing, making them affordable for everything from traffic signals to vehicle tail lights... and now flashing strobe lights!

LEDS20

LEDS8

LEDS9 (Included)

A plug-in 3x3 array of super bright Telux™ LED's creates a brilliant sharp flash just like a Xenon flash tube. The LED's can also be mounted directly on the main PC Board if desired. In the standard flash mode, a variable rate control varies the flash frequency from approx 1 to 220 flashes per second. In the audio sync mode, the flash is triggered by any audio input you provide into the standard RCA audio input connector. Built-in low and high pass filters allow you to select either bass or treble music triggering! An external trigger in/out connector lets you connect multiple units together for simultaneous flash. Optional plug-in display boards with 8 or 20 LED's are available for even more strobing power! Just imagine surrounding your room with a few of these, triggered to your stereo! Runs on 12-15 VDC, and unlike the high voltage Xenon strobes of the past, the LEDS1 is safe for the kids to build! Includes a matching custom case and knob set to give your strobe light a great finished look. The plug-in display boards may be mounted on top of the case, or remotely located. Be one of the first to experience the new high output LED's of 2004!

LEDS1C	High Power LED Strobe Light Kit With Case	~~$44.95~~ $39.95
LEDS8	Display Board, Inline Array Of 8 LED's	$17.95
LEDS20	Display Board, 5x4 Array Of 20 LED's	$29.95
AC125	110VAC Power Supply	$9.95

KIT

A Dazzling Display Of Light!

See music come alive! Three different lights flicker in time to music, one light each for low, mid and high frequencies. Each is individually adjustable, runs on 120 VAC and controls up to 300 watts per channel - enough to drive spotlights, Christmas lights, mood lights, strip lights, and more! Speaking of mood light, this will really crank up your next party! So create your own light show just like the rock concerts and Vegas shows in your own home. Includes the matching case & knob set shown to give your music lights kit a great finished look.

Dazzling Music Lights

✔ Control 3 channels X 300 watts of lights
✔ Lights flicker to music: Low, Mid, High
✔ Runs on 120 VAC

ML1C	Music Lights Kit With Case	$34.95

Laser Light Show

NEW FOR 2004!

✔ Audio input modulates pattern!
✔ Adjustable pattern and speed
✔ Projects neat motorized patterns
✔ Uses safe plastic mirrors

KIT

True Laser Beam Patterns... With Audio Modulation!

You've probably seen a laser show at concerts or on TV. They're pretty impressive to say the least!

Knowing that you can't afford a professional laser display we challenged our engineers to design one that's neat and easy to build yet inexpensive. Well, the result is the new LLS1 Laser Light Show! This thing is sweet! It utilizes two small motors and a small standard laser pointer as the basics. Then, we gave it variable pattern and speed controls to customize the pattern!

Not enough you say? How about a line level audio input to modulate the pattern with your CD's or music? You bet! Everything is included, even the small laser pointer. And to make the kit absolutely safe, we even used plastic mirrors instead of glass that could break! Runs on 6-12 VDC or our standard 12VDC AC Adapter (not included) If you're looking for a fun and neat little laser kit, the LLS1 is for you!

LLS1	Laser Light Show Kit	$39.95
AC125	110VAC Power Supply	$9.95

High Power LED Key Lights

✔ Lifetime warranty
✔ Replaceable batteries

Blinding Bright, And Always With Your Keys!

The ultimate in convenience and safety! These tiny bright LED lights are smaller than a quarter, but brighter than most full size flashlights! Small enough for your key chain, these lights are great for dark parking lots. With a lifetime warranty and replaceable batteries, how can you go wrong? You will find the super bright blue & white model easily lights up an entire room! Red & green provides a crisp spotlight effect. These make great gifts! *(They also blind my boss...Blinded by the light, lets all sing!)*

P1	Ultra Bright Keychain Light, White	$9.95
P2	Ultra Bright Keychain Light, Green	$9.95
P3	Ultra Bright Keychain Light, Red	$9.95
P4	Ultra Bright Keychain Light, Blue	$9.95

Laser Trip Sensor

✔ Set up a security fence for over 500 yards of continuous coverage
✔ Includes both Audible and Visible Alert indicators!
✔ 5 Amp external trigger relay for custom applications!
✔ Detector standby current draw of only 10 uA!!!

**Build It Tonight...
And You'll Sleep Tight!**

KIT

For years hobbyists have been intrigued by the possibility of using a 'beam of light' to control other devices! The abundance of inexpensive laser elements that have now become available has further pushed the demand for useful products and experimental kits. The LTS1 Laser Trip Sensor was developed with the intention of providing a fun and educational kit that can actually be used constructively upon completion. The kit comes with all you'll need to set up your own laser fence: the laser element (small keychain type high power laser pointer!), the PVC enclosure, and the laser detector with built in Audible and Visible Alert indicators. *(And yes, you can put the laser pointer on your keychain instead, and get thrown out of concerts, no problem!)*

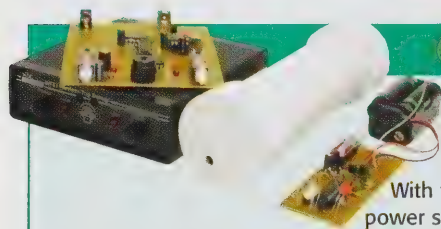The LTS1 can be used in a number of different ways. The break-away circuit board gives the user the flexibility of remotely mounting the detector circuit (optionally powered with a standard 9 Volt battery) over 500 yards away without the need for mirrors. If mirrors are used, arrangements in a doorway or as a perimeter fence can almost guarantee detection of any unwanted guests. For added functionality, the relay output (5 Amp rating) can be used to drive other devices such as an event counter, lights, or even camera modules! Operates from 9 - 18 VDC @ 90 to 100 mA. Detector portion can use a standard 9V battery with long life. Board dimensions: 4" L x 1" W (max component height: 5/8"). Includes a 6" length of 1¼" ID PVC to conveniently house and mount the board assembly. *(Now all you need is a fog machine so you can see the laser beams just like those spy movies!)*

LTS1	**Laser Trip Sensor Alarm Kit**	**$29.95**
AC125	**110VAC Power Adapter**	**$9.95**

Wired & Tested   KIT

**Remotely Detect
Motion!**

Wireless Trip Sensor

✔ Our popular Laser Trip Sensor...*NOW WIRELESS!*
✔ Remote sensing up to 300' away
✔ Provides both audible and visual alarms

With the popularity of our Laser Trip Sensor we designed the Wireless Trip Sensor for 2003! We combined a very low power sensor along with a powerful UHF transmitter that can send from over 300 feet away. Each transmitter and receiver can be set for their individual code, allowing you to protect various 'zones' and tell you which zone was violated! The Laser source is generally placed near a continuous power source and the remote transmitter can be placed anywhere without running any wires. The laser beam is typically effective for up to 1000 feet. An added benefit of the transmitter is that you can also use a local light source rather than the laser! The WTS1 will constantly look at the ambient light in the room or area you wish to protect, and sense any blockage of the light. Once that happens, it sends its wireless signal to the matching receiver to alert you! No definitive trip paths and no wires!

The sensor/transmitter mounts in a standard piece of 1½" PVC pipe (included) for easy and inconspicuous mounting. Being battery powered, there are no wires or plugs attached. The receiver includes a visible LED alarm as well as a built in audible alarm. Once tripped, the alarm remains on until it is reset by the front panel reset switch. Transmitter and receiver work at 433MHz and are designed around our proven RF modules (Page 47). Receiver includes a built in wire whip antenna and the attractive black custom case set shown.

The transmitter operates on four AA batteries (not included) and the receiver runs on 9-15 Volts DC, or our AC125 power adapter (optional). Case size 5"W x 1½"H x 5¼"D. Find out when someone goes into that room today, with the Wireless Trip Sensor.

WTS1C	**Wireless Trip Sensor Kit With Case**	**$74.95**
AC125	**110VAC Power Adapter**	**$9.95**
WTS1WT	**Factory Assembled & Tested WTS1 With Case And Power Supply**	**$119.95**

Microwave Motion Detector

KIT

✔ Great introduction to microwave basics
✔ Ideal for home alarms

**Don't Cook With Them...
Detect Motion!**

This unit sends out a microwave signal and looks for a return; a moving object will reflect back some microwave energy and the kit detects it. Since microwaves *(no, you won't get cooked or burned by them!)* are used - heat, light, sound or vibration will not affect the sensor. This makes it ideal for car and home alarms, outdoor and garage light operators, animal in-your-garbage alarms, and tons more ideas limited only by your imagination.

The MD3 is a great introduction to the basic principles of our "Speedy" Personal Speed Radar (page 17) and you can use it to investigate the properties of microwaves. Kit includes detailed instructions, theory of operation, the custom case set shown, and lots of applications and hook-ups. Runs on 9 to 15 VDC. Case size: 5"W x 1½"H x 5¼"D.

MD3C	**Microwave Motion Detector Kit With Case**	**$34.95**
AC125	**110VAC Power Adapter**	**$9.95**

Laser Beam Audio Communicator

Laser Transmitter

✔ Modulated at more than 16kHz for excellent voice audio fidelity
✔ Uses standard pocket laser module for ¼ mile maximum range (included)
✔ Each kit includes one transmitter and one receiver
✔ Includes microphone and digital AGC circuit for full audio range control
✔ Simple 9V battery operation

Send Audio Over That Laser Beam!

Laser Receiver

Now you can talk to your friends over one of the most secure long-distance transmission types available, a laser beam! Our new laser beam communicator allows you to talk with pretty good fidelity to your friends up to a ¼ mile away just using a pocket laser pointer.

The transmitter uses a microphone or external audio to modulate a laser beam on and off at a rate of more than 16kHz so the audio fidelity is much better than that of a telephone. A telephone is limited to 3kHz, the LBC6K is limited to 6kHz. The receiver includes filtering to remove the 16kHz carrier and leave behind the high quality audio, and then boost the level for use with earphones. To improve the fidelity of the system the transmitter employs audio AGC on the microphone to boost weak audio, and reduce loud audio so that the listener never misses a word Each kit includes a transmitter and receiver, and pocket laser pointer. This gives you a complete one-way audio path. If you need full duplex, or two way, buy two at the special price! Receiver and transmitter are designed to fit in two pieces of 2" PVC pipe for easy mounting and alignment.

Each runs on a standard 9V battery, DC adapter or AC adapter (not included). Audio output drives a standard personal stereo headset. Your friends will be amazed when they see you talking over that red laser beam! *(My kids built a couple of these, and were really amazed! But then they asked me why they couldn't see their voice change the laser beam light...I told them...um...ask your Mom!)*

LBC6K	Laser Beam Communicator Kit (Includes Receiver, Transmitter and Pocket Laser Pointer)	$39.95
LBC6K2	TWO Laser Beam Communicator Kits, for Duplex or Two-Way Audio *(Save $5.00!)*	$74.95

Light Beam Communicator

Voice Over An IR Beam Of Light!

✔ Send your voice over light - even through windows!
✔ 30' to ¼ mile range!
✔ Receiver drives a speaker or earphone!

Transmits a modulated infrared light beam up to 30 feet without lenses, up to ¼ mile using simple lenses. Since the beam is modulated with a 30 KHz carrier (like AM radio) there is no effect from 60 Hz hum that is produced by indoor lighting. Easily transmits through windows - ideal for "bugs" or listening to IR television remote controls.

The transmitter can use any type of mike and is very sensitive. The receiver employs an IR PIN diode detector and there is enough power to drive any loudspeaker or earphone. The PC board is cleverly "scored" so you can easily separate the Transmit and Receive sections so they can be used individually to transmit at one location and receive at another. Units run on 9 to 12 VDC, and will use standard 9V battery. The LB56 has been a popular kit for years, and a leading science fair project to show how you can send audio over Infrared! Comes complete with the custom case & knob set shown to give your project a great finished look. Case size: 5"W x 1½"H x 5¼"D.

LB56C	Light Beam Communicator Kit With Case	$29.95

ORDERING INFORMATION (It's on the back of the enclosed order form, but if it's missing...here you go!)

Payment – Check, money order, and credit card (MC, VISA, American Express, Discover) are all accepted. If paying by credit card, please include the full card number and the expiration date. If you are paying by credit card, you must provide the billing address exactly as it appears on your credit card statement. Call 800-446-2295 or order online at www.ramseykits.com.

Sales Tax – NY and VA residents must add appropriate sales tax unless a signed resale certificate accompanies your order.

Prices – Prices shown are those in effect at the time of publication. We work to hold prices firm, however, prices are subject to change without notice. Current prices will prevail at the time an order is placed. Visit **www.ramseykits.com** for any last minute updates!

Shipping –
  Continental U.S. customers – We normally ship via Parcel post or UPS depending on the size and value of the order. If we are shipping via UPS you must provide a physical address, as UPS will not deliver to P.O. Boxes. Add $7.95 for shipping, handling, and insurance on all orders. Express and air shipments are extra and priced at cost. COD is an additional $6.50.

  Alaska, Hawaii, and Puerto Rico – Specify USPS First class, UPS 2nd day, or UPS overnight only. The amount will be added to your order.

  Canadian customers – Make checks payable in U.S. funds or use a credit card. Add 20% to the cost of your order for shipping to a maximum of $50.00 for parcel post shipment. If you request UPS for delivery, we will confirm the amount to you prior to shipment. **These charges do NOT include any international duty charges.** Be aware, UPS shipments may be delayed in customs.

  Overseas customers – We will determine the best method and cost for your location, and will confirm to you before shipment.

Returns – Examine (do not build) any kit for up to 10 days. If not completely satisfied, return in the original packaging for a full refund. Kits that are partially built cannot be returned. Wired and tested items can be returned if in their original packaging, suitable for resale.

Design Changes – From time to time we make design changes. Some items may differ slightly from photographs and descriptions in the catalog. You can be sure that such changes are made in the interest of better performance or appearance. In addition, with the fluctuating pricing changes of some electronic components, pricing is subject to change.

Manual Preview – Looking at a kit and want to review it more closely? Our manual preview policy lets you purchase most of our manuals for $5.00 (a few are more). Purchase price of the manual will be credited against your future associated kit purchase. You can also download most manuals (excluding the schematic!) at no charge from our website at **www.ramseykits.com**.

Tri-Field Meter

Detect It ALL With The SCI-FI Detector You Can Build!

We realize you can't "beam down" to the surface of the planet, but you CAN have our new Tri-Field Meter to detect and sense the fields around you! This really neat project actually senses and detects magnetic fields, RF fields, and electric fields! Even Mr. Spock would like this one!

✔ SEE RF, electric, and magnetic fields!
✔ Watch the magnetic field of the earth!
✔ Sense different magnetic poles!
✔ Detect RF transmitter fields
✔ Sci-Fi design
✔ Runs on 6 VDC

Winter Super Sale Expires 01/15/04

The TFM3 has three separate field sensors that are user selectable to provide a really cool readout on two Sci-Fi styled LED bargraphs! Utilizing the latest technology, including Hall Effect sensors, you can walk around your house and actually "SEE" these fields around you! You will be amazed at what you see. How sensitive is it? Well, you see the magnetic field of the earth...THAT'S sensitive! Also detect radiation from monitors, TV's, electrical discharge, and RF emissions. You will have fun finding these fields and at the same time learn the technology behind them. Runs on 6VDC (4 AA batteries, not included). Includes a stylish matching case that will impress even the most fussy Klingons! Live long and prosper! *(Our project engineer told me I could detect static in my hairbrush several feet away... But I don't have any hair!!!)*
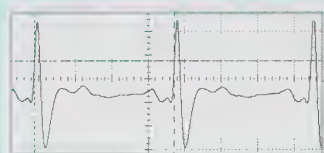
TFM3C   **Tri-Field Meter Kit With Case**   **$54.95** $59.95

Electrocardiogram Heart Monitor

✔ Visible and audible display of your heart rhythm
✔ Re-usable sensors included; just like visiting the lab at the hospital!
✔ Bright LED "Beat" indicator for easy viewing
✔ Monitor output for professional display on your oscilloscope
✔ Simple and safe 9V battery operation

Check Your Own Heart & Stay Healthy!

Winter Super Sale Expires 01/15/04

One of the main reasons we designed the ECG1 was to answer a long running debate here at the shop. We wired up the 'Boss' and finally confirmed he does not have a heart! Use the ECG1 to astound your physician with your knowledge of ECG/EKG systems. Enjoy learning about the inner workings of the heart while at the same time covering the stage-by-stage electronic circuit theory used in the kit to monitor it. The three probe wire pick-ups allow for easy application and experimentation without the cumbersome harness normally associated with ECG monitors. The documentation with ECG1 covers everything from the circuit description of the kit to the circuit description of the heart! Multiple 'beat' indicators include a bright front panel LED that flashes with the actions of the heart, an adjustable level audio speaker output supporting mono or stereo hook-ups, and a monitor output to view the traditional style ECG/EKG waveforms you see on ER!

The fully adjustable gain control on the front panel allows the user to custom tune the differential signal picked up by the probes giving you a perfect reading every time! Includes the matching custom case set shown, and operates on a standard 9VDC battery (not included). This is NOT a medical device, it is intended for hobbyist usage only. If you experience any symptoms, seek medical help immediately! *(Editors note: This kit is not intended for catalog editors and webmasters of Ramsey Electronics; it's too late!)*

ECG1C   **Electrocardiogram Heart Monitor Kit With Case**   **$39.95** $44.95
ECG1WT   **Factory Assembled & Tested ECG1 With Case And Power Supply**   **$89.95**
ECGP10   **Set of 10 Replacement Reusable Probe Patches**   **$7.95**

Ion Generator

Generate A Breath Of Fresh Air!

✔ Generate negative ions along with a blast of fresh air, without any noise!
✔ Generates a steady state DC voltage at a constant current, not pulsed!
✔ Generates 7.5kV DC negative, 400uA. That's a lot of ions!

This nifty kit includes a pre-made high voltage ion generator potted for your protection, and probably the best one available for the price. It also includes a neat experiment called an "ion wind generator". This generator works great for pollution removal in small areas (Imagine after Grandpa gets done in the bathroom!), and moves the air through the filter simply by the force of ion repulsion! No fan blades, no noise, just swiftly moving, charged air.

Winter Super Sale Expires 01/15/04

Learn how modern spacecraft use ions to accelerate through space. Generate negative ions for health and healing! Includes ion power supply, 7 ion wind tubes, and mounting hardware for the ion wind generator. *Caution...do not grab the output of the transformer, all the ions may be sucked out of your body! And don't you just hate it when that happens!*
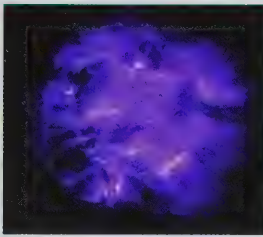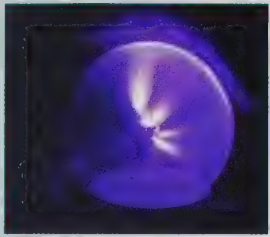
IG7   **Ion Generator Kit**   **$59.95** $64.95
AC125   **110VAC Power Adapter**   **$9.95**

Plasma Generator

✔ Generate 2" sparks to a handheld screwdriver!
✔ Light fluorescent tubes without wires!
✔ Build your own Plasma Balls!
✔ Generates up to 25kV @ 20 KHz from a solid state circuit!

KIT

Shocking Results!

This new kit was conceived by one of our engineers that likes to play with things that can generate large, loud sparks, and other frightening devices. During the process of looking for parts for one of his latest experiments he discovered how difficult it was to find a high voltage transformer that met his requirements. Well, we had a super unit designed expressly for us!

This is one heck of a neat kit! Hey, it really serves no purpose other than producing stunning lighting displays, drawing big sparks, scaring the neighbors and performing lots of high voltage experiments. In the picture, we took a regular clear "Decora" style light bulb and connected it to the PG13 - WOW! A storm of sparks, light tracers and plasma filled the bulb. Holding your hand on the bulb doesn't hurt a bit and you can control the discharge! It can also be used for powering other experiments; let your imagination be your guide! The high voltage at the terminal won't electrocute you, so it's relatively safe, but it can burn you, so use caution. Can also be run from 5-24VDC so the output voltage can be directly adjusted. Put one in your car to freak out those SUV drivers. This is for advanced experimenters only! Not for the faint of heart! *(Unless you buy the ECG Kit on page 22, then it's OK!)*

PG13	Plasma Generator Kit	$64.95
PS20	14VAC Output Power Adapter	$19.95

NEW FOR 2004!   Wired & Tested   KIT →

200 kV Van deGraaf Generator

✔ 200,000 volt potential!
✔ Sparks up to 5"!
✔ Operates in high humidity!
✔ Available kit or assembled & tested

Dazzle Them With Huge Sparks!
Make Your Hair Stand Up On End!

Create your own lightning with these time-tested devices that have delighted students for decades! Named after the inventor Van de Graaf, a German physicist, this machine produces low-amperage static electricity that can be "shocking" but perfectly safe. Two different pulleys with 2 neoprene belts inside a 1¾" plastic column create and carry static charge up to the 7" polished aluminum collector globe. You can draw out this static charge in a burst of lightning, sparks, or you can even set each hair on your head on end! It's an incredible display! The entire unit is 18" tall and runs on 110VAC and includes a ground clip for discharge wands. Our comprehensive instruction book tells you how to raise hair, produce lightning and electric wind, experiment with St. Elmo's fire or electrostatic attraction and repulsion. For a stunning display use the matching "discharge wand" with your VG200 and watch the sparks fly between the two globes!

If you're looking for a really neat experience and want to learn the basics at the same time, the Van deGraaf generator kit is for you. If you can't wait to build it and just want to have a ball with the sparks, we even offer it factory assembled and tested! Your choice! If 200 kV isn't enough zap for you, check out our VG400 below! *(So we got these in, our techs set one up, and they called me to make my hair stand up on end....wait, my hair fell out when I was 22!)*

VG200W Discharge Wand

VG200	200 kV Van deGraaf Generator Kit	$119.95
VG200WT	Factory Assembled & Tested VG200	$139.95
VG200W	Matching Discharge Wand, 1.3' Rod	$59.95

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400 kV Van deGraaf Generator

Wired & Tested

✔ Super high output, 400,000 volt potential!
✔ Generates sparks up to 12"!
✔ Heavy duty construction throughout
✔ Factory assembled & tested

NEW FOR 2004!

When 200,000 Volts Just Isn't Enough!

What's the matter, our 200 kV Van deGraaf doesn't have enough "stooch" for you? You want even more of your hair to stand straight up? You want foot long sparks? Well, for you die-hard shock fans, here you go, how does 400 kV sound? Just like its little brother the VG200, it can create lightning and make hair literally stand up on end! The VG400 produces up to 400,000 volts with special neoprene belts inside a 3" diameter transparent butyrate column to carry the 10 microamp charge up to the whopping 13" polished aluminum globe! It proudly stands 35.5" tall with a very heavy metal base for rock stable operation. The foolproof brush assembly never needs adjustment to guarantee flawless operation...and lots of sparks! The VG400 runs on 110VAC, and includes a power cord, on/off switch, and a grounding terminal for discharge wands. Just like the VG200 we include a comprehensive instruction book that nicely describes all the experiments and displays you can produce.

VG400W Discharge Wand

If you really want to put on a show, use the matching VG400W discharge wand and watch the action between them! It's incredible and produces a fantastic display! The high power VG400 is available factory assembled and tested only to assure you perfect and safe operation. When you receive it, just plug it in and you'll have a hair-raising experience...we guarantee it! If you have a hankering to safely play around with 400,000 volts, then the high power Van deGraaf generator is for you. *(You do know what stooch is, right?)*

VG400WT	400 kV Van deGraaf Generator, Factory Assembled & Tested	$439.95
VG400W	Matching Discharge Wand, 2.6' Rod	$69.95

Phone Recorder Controller

Wired & Tested · **KIT** →

✔ Undetectable on phone line
✔ Needs no battery, operates on telephone line power

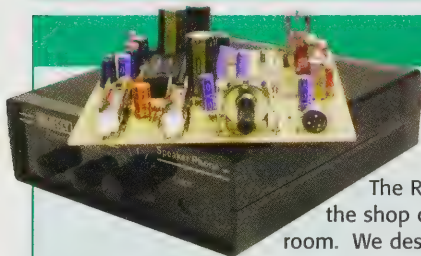### Telephone Line Powered Automatic Control!

Keep a record of all your telephone calls - automatically. The TT1 connects anywhere on the phone line and will control any battery powered tape recorder that has standard microphone and control jacks. The recorder automatically starts and stops whenever the phone is used and records both sides of the conversation with excellent fidelity

Super easy one hour assembly and a manual that tells you not only how to build the kit, but how it works as well. The controller is easy to use and looks great in the included custom case shown. Case size: 5"W x 1½"H x 5¼"D. The TT1 is also available factory assembled and tested and ready-to-go!

TT1C	**Tattle-Tale Recorder Controller Kit With Case**	**$29.95**
TT1WT	**Factory Assembled & Tested TT1 With Case**	**$59.95**

Super Speakerphone

KIT →

High Performance Motorola Chip!

✔ Needs no battery when connected to phone line
✔ Can also be used as hands free intercom!
✔ Effective from anywhere in the room

The Ramsey speakerphone kit efficiently replaces a cluster of add-on phone gadgets to give you what you really want in the shop or office: the ability to answer incoming calls and continue what you're doing while talking from anywhere in the room. We designed this device because we needed such units at work, so the technicians could answer a telephone question while checking a manual or taking a voltage reading. Well, quite a few of our prototypes found their way home and pretty soon we realized that this would make a great kit.

Super for family and conference calling. Or, as we discovered here, connect two together for a completely hands-free intercom - ideal for linking the shop with the rest of the house. Imagine how handy it would be to simply answer back from anywhere in your shop - without stopping what you're doing. It's like linking two rooms together into one. The real beauty of this kit is: 1- it needs no battery when connected to the phone line and 2 - it can be simply connected to the phone line by itself without using an extra telephone. For intercom use, a regular 9 volt battery powers the unit. Includes built-in electret microphone, just add your choice of speaker. Comes complete with the custom case & knob set shown.

SP1C	**Speaker Phone Kit With Case**	**$39.95**

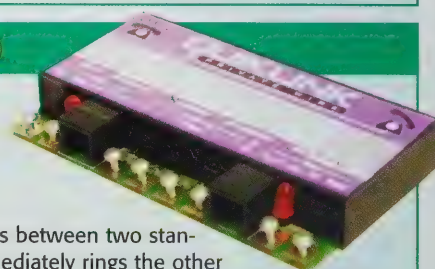## Automatic Telephone "Ring Down"

✔ Instant off-hook ringdown access between two telsets
✔ Private full duplex intercom with selectable ringdown
✔ Instantly generates call on offhook, no dialing!
✔ Test ringing, answering and signal-path functions of any telecom device
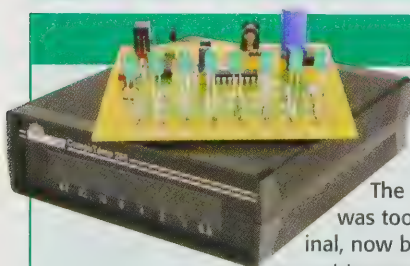
Wired & Tested

Fully Automatic, Just Go Off-hook!

What is a telephone ring down you may ask! They have been used for years as dedicated communications paths between two standard telephone sets. Over a single pair, with a phone at either end, merely going off hook with one phone immediately rings the other phone. When picked up you have a complete intercom path to talk. No dialing necessary! What are they used for? Well, on the intercom or communications side they are commonly used for elevator phones, guard post hotlines, door entry phones in homes and offices, and on commercial job sites for rugged intercoms. But it just starts there! Can be used to test ringing, answering, and signal path conditions of devices, two-wire off premises extensions, PABX to Key System tie lines, and more. Measures 5/8 x 4¼ x 2½ inches and is totally encapsulated in UL 94V-0 flame-resistant epoxy resin for long, reliable operation. Ringing pattern is selectable to continuous ring; 1 on 1 off; 2 on 2 off; 2 on 4 off. Runs on 12 VAC at 500 mA (Power Transformer is included) or 20–28 VDC at 300 mA. If you work on telephone equipment or are just looking for an ultra reliable telephone, the QLRD1 can't be beat!

QLRD1	**Automatic Telephone Ring Down, Factory Assembled & Tested**	**$89.95**

Binary Thermometer

KIT →

CompuTemp...Watch Binary conversion!

✔ Accurately read temperature from 0 - 125 degrees Celsius
✔ Eight bright LEDs show temp in binary fashion
✔ Watch the conversion occur!

The CompuTemp is a return of a classic kit that Ramsey developed and sold back in the 70's. We decided that this kit was too interesting to be left in the archives and restored it to our ranks of "neat" kits! It is slightly enhanced over the original, now being able to display Celsius as well as Fahrenheit. Watch the mesmerizing display as the LEDs count up to the current temperature in binary, then hold the final temperature before starting over. A great conversation piece as well as an educational experience! Learn how to count in binary, as well as how analog to digital converters work! Includes the matching case set shown, measures 5"W x 1½"H x 5¼"D.

CT255C	**CompuTemp Binary Thermometer Kit With Case**	**$39.95**
AC125	**110VAC Power Adapter**	**$9.95**

The Bullshooter Digital Voice Storage

Wired & Tested   **KIT**

No More Tape To Break!

✔ Endless tape loop playback without the tape!
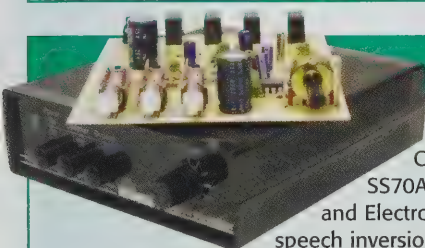✔ 8 full minutes of pure digital audio storage time
✔ Mic & line level inputs

We've received a ton of calls from realtors and other people asking the same question..."What do you have that will repeat a sales pitch all day long?" Well, here it is, the BS1!! This kit combines a sweet new digital recording chip and a microprocessor to provide eight full minutes of high quality digital recording with "endless loop" playback capabilities. Then we added an on-board high sensitivity electret condenser microphone to record your announcements on the spot and an audio amplifier with a front panel volume control to play back your announcements directly to an external speaker. Features dual line level mono outputs for connection to left & right stereo inputs on amplifiers and transmitters, line level input, and 2.5mm miniature phone speaker output. Perfect for everything from advertising real estate to repeating monotonous instructions at a swap meet! Easy one-touch pushbutton operation keeps everything simple...just push the record and play buttons and watch the LED indicators indicating which mode you're in. It's that simple! Runs on 12VDC. The included matching case measures 5"W x 1½"H x 5¼"D. Start "Squawking" those messages now with the BS1!

BS1C	Bullshooter Endless Loop Voice Storage Recorder Kit With Case	$64.95
BS1WT	Factory Assembled & Tested BS1C With Case And Power Supply	$99.95
AC125	110VAC Power Adapter	$9.95

Speech Scrambler & Descrambler

Wired & Tested   **KIT**

Decode That Garbled Gibberish!

✔ Full duplex operation allows scrambling and descrambling at the same time
✔ Bypass mode provides quick change from direct audio to descramble

Communicate in total privacy over your radio! This is the popular SS70A descrambler/scrambler that you've read about in all the Scanner and Electronic magazines. The technology used within the unit is known as speech inversion which is compatible with many police department systems; hook it up to your scanner speaker terminals and you're in business. (However, always be sure to check with your local authorities to ensure that you're not straying into any unlawful communications reception.) The SS70A is full duplex in operation - you can scramble and unscramble at the same time. Easily configured for any use! Easy to build since all complex circuitry is contained in a custom ASIC chip which provides clear, clean audio. Powered by 9 to 15VDC, with 3.5mm mini phone type input/output jacks. The included case measures 5"W x 1½"H x 5¼"D.

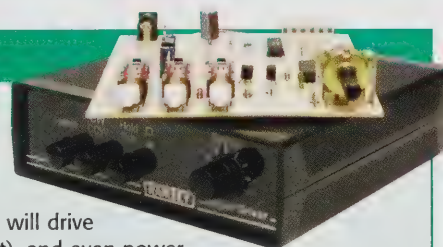|		
SS70C	Speech Scrambler/Descrambler Kit With Case	$39.95
SS70AWT	Factory Assembled & Tested SS70C With Case And Power Supply	$69.95
AC125	110VAC Power Adapter	$9.95

Stepper Motor Driver

KIT

✔ Controls direction, step size, and power to the motor
✔ Output drives 5 to 15 volts
✔ Uses Motorola Stepper Motor Driver IC Chip

Finally...A Controller For All Those Surplus Motors!

The motors are top quality, but how the heck do you drive them without shelling out a fortune? Easy, with the Ramsey Super-Stepper! Build an accurate positioner, X-Y controller, plotter or even a Robot! The Super-Stepper will drive almost any stepper from 5 to 15 volts. You'll be able to control direction, speed, step size (rotational increment), and even power-down the motor after rotating it. An on-board clock generator is provided for easy hook-up-and-go operation or you can externally drive the kit for more exotic control. We give complete details and ideas for additional uses. Put those versatile, first rate (and cheap!) motors to work with this exciting kit. Includes the matching black custom case set. Operates on 5 to 15 VDC. Case size 5"W x 1½"H x 5¼"D.

SMD1C	Stepper Motor Driver Kit With Case	$34.95
AC125	110VAC Power Adapter	$9.95

DC Motor Speed Control

KIT

✔ Real pulse width modulation for accurate, stable motor control
✔ Controls DC motors from 3 to 50 volts - up to 10 Amps!

Full Power...Any Speed!

You see, controlling a DC motor's speed is not as easy as varying its supply voltage. The motor loses torque (power) as the voltage is lowered and finally stops rotating. The MSC1 uses a technique known as "Pulse Width Modulation" - PWM - to control speed. This is the same system used on electric cranes, buses and subway cars. With PWM, the motor receives full voltage whenever energized - however, the duration of the voltage changes; it's sort of like flipping an on/off switch very rapidly! The motor rotates smoothly and with full power - no matter what the speed. The MSC1 will control DC motors from 3 to 50 volts at up to 10 amps! Complete instructions detail how the PWM circuitry operates and some hook-up ideas. Assembly takes only an hour or two. Kit operates on 9 to 12 VDC and controls motor supply of 3 to 50 volts. Includes our custom case set measuring 5"W x 1½"H x 5¼"D. *(To our friend that tried to use this to control 480V/100A industrial motors...sorry about the melted case!)*

MSC1C	DC Motor Speed Control Kit With Case	$34.95

Wireless IR Remote Repeaters

[KIT]

✔ Works with almost any remote control, does not need to be programmed!
✔ Transmitter converts your IR remote to RF
✔ Receiver converts transmitted RF back to your IR signal
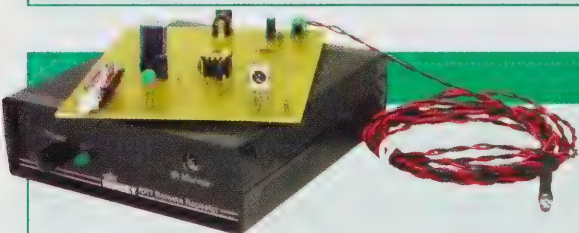✔ Operate from 7V to 18V AC or DC

Don't Be A Control Freak!

Have you ever been frustrated with the range of your remote controls? Tired of having to bounce your IR remote off ceilings and walls? Do you want to run your system from another room or floor? This is the answer to your prayers! Extend the range of your remote controls through walls, around corners, and even from outdoors. Unlike store bought units, error correction can be turned on for pulse width regeneration. The foolproof IR repeater!

Take advantage of wireless technology with this practical kit, which almost anyone can use. The RRW1A and RRW1B pair allow you to rebroadcast your AV Infrared remote controls wirelessly on 433 MHz up to 100 feet. Broadcast through walls, doors, floors, and ceilings. Use the pair to control the satellite receiver downstairs, and watch it upstairs! Be outside and control the tunes on your stereo system in the living room!

Use multiple RRW1A's to broadcast from multiple locations in the house to the single RRW1B receiver near your equipment. Feed the control freak in all of us! Both units operate on 7-18V AC or DC. For continuous operation, use our AC125 AC power adapter. Sleek matching cases measure 5"W x 1½"H x 5¼"D. *Don't you hate it when you go to someone's house and they have a dozen remotes on the coffee table? Don't they know about universal or smart remotes?*

RRW1AC	Wireless IR/RF Transmitter Kit With Case	$29.95
RRW1BC	Wireless RF/IR Receiver Kit With Case	$34.95
AC125	110VAC Power Adapter	$9.95
RRW1PC	Complete Package, RRW1A With Case, RRW1B With Case, Two AC125 Power Adapters ($84.80 Value)	$74.95

[KIT]

Wired IR Remote Receiver/Repeater

Don't Rearrange Your Room!

✔ Control those components anywhere in the house
✔ Works with any 38 KHz carrier IR remote
✔ Indicator indicates IR reception
✔ Operates from 6V to 16V AC or DC

Have you ever been so frustrated with the range of your remote that you have to go through the effort of rearranging your entertainment room? Tired of having to bounce your IR remote off ceilings and walls? Do you want to control your system from another room? The RR1 is the answer for you. We use a super integrated IR detector with bandpass filtering, AGC and RFI shielding. Receiving range is easily over 35 feet!

It extends the range of your IR remote controls to distances limited only to the wire length you use! Locate the IR receiver in a convenient location reachable with your existing remote control, and run the IR LED extender cable near the front of the equipment you wish to control. It's that easy! Keep your expensive components safely locked away, and let the RR1 be the key to control them! While you're building this kit, learn the theory of how IR remotes work and how we use the power of a microprocessor to provide you with flawless performance and the added benefit of error correction! The included matching case set measures 5"W x 1½"H x 5¼"D.

RR1C	Wired IR Receiver/Repeater Kit With Case	$29.95
AC125	110VAC Power Adapter	$9.95

Wired & Tested | **KIT**

Signal Magnet Antenna

Pull In That Station Right Out Of The Noise!

✔ Outstanding results from 500 KHz to 15 MHz
✔ High-Q Ferrite Rod antenna with Faraday shield eliminates noise from power lines, light dimmers, most static crashes, and more!

This antenna responds only to the magnetic field of the desired station and ignores the electrostatic field where most interference is found. It does a remarkable job pulling in stations lost down in the noise of powerline crud, fluorescent lamp buzz and light dimmer hash. Plus it's very directional, able to null strong stations on the same or nearby frequencies! We developed this antenna to pull in WGR, a 250 watt nighttime station 75 miles away, so we could listen to Buffalo Bills talk radio during the night. You can imagine all the powerline and equipment noise we have here at the factory. So, we came up with this ferrite rod, varactor tuned active antenna that's Faraday shielded - it only responds to the magnetic field - and boy does it do the job!

Designed to cover the AM broadcast band, but includes details on building for any frequency range up to 15 MHz; it works gang-busters on Shortwave. Works indoors or out, contained in rugged PVC pipe with a single RG-59 coax cable connector. Operates with up to 500 feet of coax cable (you supply) between antenna assembly and control box (size: 5" x 5 ¼" x 1½"). Includes all parts, matching case set and precut PVC materials. Operates on external 120 VAC power adapter that is included. Antenna is 9 1/2" x 9" long, L-Shaped 1" pvc pipe with end caps. *(It worked just great to listen to the Bills players explain for 4 straight years why they lost the Super Bowl!)*

SM100	**Signal Magnet Noise Reduction Antenna Kit With Case**	**$89.95**
SM100WT	**Factory Assembled & Tested for AM Band**	**$134.95**
PWR25	**12VAC Power Adapter**	**$9.95**

Active Antenna

✔ Dual Preamp for HF or VHF/UHF
✔ Performs like a 60' Long Wire!
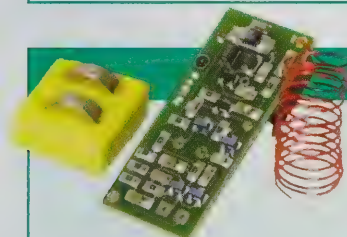✔ Operates as a stand-alone antenna or in conjunction with an existing antenna

KIT

Pull In Those Stations...The EASY Way!

Our AA7 features both a high gain, low noise FET and a superb microwave bipolar amplifier, letting you use the antenna on all bands - shortwave, HF, VHF and UHF! Imagine a self-contained unit just 4 inches square that pulls in the signals like a 60 foot long wire; that's the advantage of an active antenna. For jazzing up VHF/UHF receivers and scanners, the AA7 has you covered, too. Over 15 dB of gain pulls in the weak ones, whether you use the built-in telescopic whip or an outside antenna.

Features of the AA7 include: Front panel RF gain control, power switch with preamp bypass switching, two position HF and VHF/UHF selector, rear panel input and output connectors, convenient 9 volt battery operation and on-board telescopic whip antenna. We think you'll agree that the AA7 is simply the most practical and best value of any active antenna on the market! Includes whip antenna and matching case set. Operates on 9 V battery (not included). Case size 5"W x 1½"H x 5¼"D.

AA7C	**Active Antenna Kit With Case**	**$39.95**

Model Rocket Tracking and Telemetry Transmitter

Super Stable, Crystal Controlled

✔ Easily track your rocket using a scanner receiver!
✔ Crystal controlled - no frequency drift!
✔ FM transmission!
✔ Subminiature SMT construction to fit any application!

KIT | **Wired & Tested**

The sky's the limit for this super stable, drift free transmitter! Most low cost transmitters are tunable and subject to frequency drift when subjected to temperature variations and vibration, etc. The MR6 frequency is set by a crystal to a frequency in the 2 meter Ham band of 146.535 MHz, easily picked up on any scanner radio or 2 meter rig. Changing the crystal allows you to change frequency anywhere in the 140 to 160 MHz range, and crystals cost only five or six dollars.

The telemetry/data input on the MR6 will accept any audio frequency telemetry source from your application's sensors. Transmission range is approximately ¼ mile line of site. The MR6 uses the latest in SMT surface mount technology and parts, so if you want to learn more about SMT, this is the kit for you! Don't be afraid of losing those small parts; we even include a few extras just in case you sneeze and lose a part! Power is supplied by 3 volt Lithium camera battery or a pair of watch batteries which are included.

MR6	**Model Rocket Tracking Transmitter Kit**	**$44.95**
MR6WT	**Factory Assembled & Tested MR6**	**$79.95**

Shortwave Receiver

✔ Tunable over 2 MHz bandwidth anywhere in the 4 to 20 MHz Shortwave Band
✔ Clean superheterodyne design with automatic gain control
✔ Extremely sensitive front end!

The Perfect "Beginners Receiver"!

Here's a complete shortwave radio guaranteed to inspire awe in any listener. Imagine tuning in the BBC, Radio Moscow, Radio Baghdad and other services with just a few feet of antenna. This very sensitive (about a microvolt!) receiver is a true superhet design with AGC and plenty of speaker volume.

Smooth varactor diode tuning allows you to tune any 2 MHz portion of the 4 to 20 MHz frequency range, and the kit conveniently runs on a 9 volt battery (not included). Add our matching custom case and knob set to give your radio a finished, polished look. Amaze yourself and others - see how you can listen to the world on a receiver you built in an evening. Drives any speaker or earphone. Included case measures 5"W x 1½"H x 5¼"D.
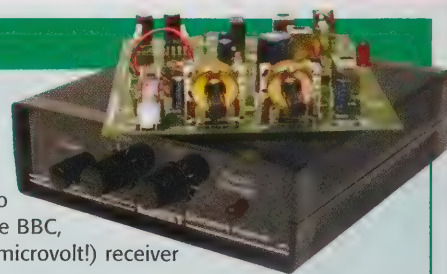
SR2C   **Shortwave Receiver Kit With Case**   **$44.95**

Inexpensive Start To SWL!

The SC1 converter brings the sounds of the world right into your car, radio, or home stereo (set to receive AM broadcast band). Front panel push switches let you choose easily between regular AM radio and the shortwave bands. An additional switch allows the selection of any two bands of interest, each 1 MHz wide.

Shortwave Converter

✔ Receives and converts two (1 MHz wide) shortwave bands to standard AM band for listening on your existing AM radio
✔ Push-button switches provide easy selection of SW1, SW2 or AM Broadcast
✔ Tuning performed on AM radio
✔ Built-in antenna switching

Set one range for daytime frequencies and one for nighttime when propagation is different; choose any two frequencies between 3 and 22 MHz. Frequencies are tuned on your AM radio, making it easy to log stations or set presets. A built-in antenna switch automatically switches the existing AM antenna to either the radio or converter, making hook-up/operation easy and fast. External power jack for 9 to12VDC is a standard 2.1mm female. Included case measures 5"W x 1½"H x 5¼"D.

SC1C   **Shortwave Converter Kit With Case**   **$39.95**
AC125   **110VAC Power Adapter**   **$9.95**

WWV Time Receiver

✔ Receives 10 MHz WWV transmissions
✔ The world's time standard at your fingertips!
✔ Built-in speaker plus audio output jack
✔ Super easy assembly with no tuning required!

Does Anybody Really Know What Time It Is??

What time is it? This quality WWV receiver is designed to receive the 10 MHz National Institute of Standards (NIST) atomic clock - the sole time standard for the Planet! Very sensitive receiver needs only a few feet of wire to pick up WWV, utilizes unique Log/Anti-log detector circuitry for super easy assembly, alignment, and operation.

Detailed manual teaches theory of receiving systems - you'll be an expert after building this baby - and it only takes a few hours! Believe it or not, no tuning is required for operation! Runs on 9 volt battery, includes speaker, too. Crystal included for 10 MHz reception; change the crystal to receive other frequencies in the 5 - 15 MHz range. Includes a custom matching case set for a great finished look. *(Now I have that song stuck in my head...does anybody really care?!!*

HFRC1C   **WWV Shortwave Receiver Kit With Case**   **$44.95**
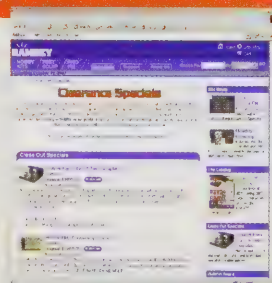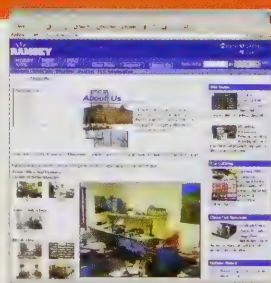
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ramsey

ORDER FORM

Note: Credit Card Order MUST have your phone number, and must be shipped to your credit card billing name and address!

NAME _____ **KEY CODE** _____

ADDRESS _____

ADDRESS _____

CITY _____ **STATE** _____ **ZIP** _____

PHONE (____) - _____ E-MAIL _____

Qty	Model No.	Description	Price Ea.	Total

		$	
SUBTOTAL OF ITEMS ABOVE (minimum of $10.00 except for manuals)		$	
Standard U.S. Shipping Includes Shipping, Handling, and Insurance (Best way ground)		$	7.95
Premium U.S. Shipping **ADD**: 3 Day Air: $4.50, 2nd Day Air: $8.00, Next Day Air: $21.00		+	
C.O.D. **ADD** $6.50		+	
Saturday Delivery **ADD** $10.00 (must select Next Day Air, above)		+	
International **20%** of "Total Items" ($100.00 max ship charge, no C.O.D.)		+	
Canada **20%** of "Total Items" ($50.00 max ship charge, no C.O.D.)		+	
NY & VA Sales Tax **ADD** your rate if you reside in these states		+	
GRAND TOTAL (including shipping)		$	

Payment: Check ❑ **C.O.D. (USA Only)** ❑ **Credit Card** ❑

Credit Card # _____

Expiration Date _____ Signature _____

Note: Credit Card Order MUST have your phone number, and must be shipped to your credit card billing name and address!

Name _____

Address _____

City/State/Zip _____

ramsey
electronics inc.

590 Fishers Station Drive
Victor, NY 14564-9744

Aircraft Receiver

✔ Picks up aircraft, control towers, and more!
✔ Tunes entire 118 MHz to 136 MHz Aircraft band
✔ Automatic gain and squelch controls

**Kit Planes Magazine...
"Puts You In The Pilot's Seat"!**

Tune into the exciting world of aviation. Listen to the airlines, big business corporate jets, hotshot military pilots, local private pilots, control towers, and other interesting and fascinating air-band communications. You'll hear planes up to a hundred miles away as well as all local traffic.

The AR1 features smooth varactor tuning of the entire air band from 118 to 136 MHz, effective AGC, superheterodyne circuitry, squelch, convenient 9 volt operation and plenty of speaker volume. Includes our custom case & knob set for a great looking finished receiver! Case measures 5"W x 1½"H x 5¼"D. Operates on 9 VDC battery (not included). Use with any speaker or earphone.

AR1C   **Aircraft Receiver Kit With Case**   **$44.95**

FM Broadcast Band Receiver

✔ Standard FM receiver, with larger tuning range of 70 to 110 MHz
✔ Ideal for FM wireless mikes, SCA programming, or standard FM broadcasts
✔ Demodulated audio output for driving our SCA1 decoder

**Perfect For
"Out Of Band"
Listening**

Ideal for standard FM broadcast band as well as large portions on each side, making it great for bug monitoring or detection and receiving SCA broadcasts. Features one microvolt sensitivity, 10.7 MHz IF, 250 mW audio output, varactor diode tuning, IC FM detector chip, demod output to drive our SCA1 decoder and operates on 9 VDC battery (not included).

Drives any 4 - 45 ohm external speaker. Includes our matching custom case set, measuring 5"W x 1½"H x 5¼"D.

FR1C   **FM Broadcast Band Receiver Kit With Case**   **$34.95**

SCA Subcarrier Decoder

✔ Tunes entire SCA subcarrier band, 50 to 100 KHz
✔ Features both speaker and line level audio outputs
✔ Simply plugs into our FR1 FM broadcast receiver or to detector in any FM receiver

**How DO They Get That
Commercial Free Music??**

Believe it or not, they get it off the local FM radio station, but with a special decoder. Now you can build your own decoder and tap into the wealth of programming available to those "in-the-know."

Programming available runs the gamut from stock quotes, to rock music, to easy listening, to all news. These services are "hidden" in subcarriers riding along with the standard FM radio station's usual programming. The decoder connects to the detector output on an FM receiver; if your receiver does not have such an output, consider our FR1C above!

Tune into what you've been missing, try the SCA1. Includes a custom case set to match the FR1 receiver above. Case measures 5"W x 1½"H x 5¼"D.

SCA1C   **SCA Decoder Kit With Case**   **$39.95**

FAQ's
All The Answers!

Kit Building Guides
How To Build Your Kit!

Downloads!
Manuals & Software!

LIVE Webcams!
Watch Us LIVE 24/7!

WIN Every Month!
Register To Win!

Subminiature 20W Audio Amplifier Module   KIT   NEW FUN 2008!

✔ 20 Watts from one SMT package!
✔ Super efficient Class D design!
✔ Super clean output!
✔ No heat/heatsink concerns!

Look Ma...NO Heat!

The UAM2 is probably the neatest audio kit to come along in quite a while! It uses the latest amplifier technology to bring you clear, crisp, high-power audio without any of the heat which is normally generated! This is what is called a class "D" amplifier, or as the media calls it, a "Digital" amplifier. Instead of operating like a classic class "A" or class "AB" amplifier which leaves transistors biased on all the time losing energy whether they are producing audio or not; the class "D" amplifier only produces power into the load or your speaker!

This means that a small SMT part can deliver a full 20 watts of power without getting so much as warm! YES, I said SMT or Surface Mount! Now you can install this amplifier right inside your speaker enclosures, or wherever this nifty kit will fit, without worrying about a heatsink! Just look at the specs! Unique board can be "snapped" out into a small circle to be double face tape mounted directly to the back of a speaker! This IS a Surface Mount (SMT) kit, so you will need fine tweezers, magnifier, and a decent fine tip soldering iron! See assorted tools and accessories on page 55. *(Who ever thought of 20 watts in a single SMT device; I still remember fighting with vacuum tubes to get 20 watts!)*

SPECIFICATIONS	
Audio Output:	20W max
Signal/Noise:	102dB into 8 ohms
Total Harmonic Distortion:	Less than 1%
Audio Input:	Line level
Gain Adjust:	4 input gain settings
Protection:	Auto short to ground shutdown
	Auto short to Vcc shutdown
	Auto short together shutdown
	Auto thermal shutdown
Power Input:	8-18 VDC, 2.1mm connector
	(18VDC for full rated output)
Dimensions:	2.6" square, 1.43" diameter

UAM2	20 Watt Audio Amplifier Module Kit	$34.95
SPS18	18VDC Switching Power Supply, 1.7A	$24.95

Stereo Headphone Amplifier   KIT   Wired & Tested

No Headphone Jack? No Problem!

✔ Make your headphones sound GREAT!
✔ Use with table radios, CD players, tuners, and more
✔ Great as a basic preamp for any line level signal

So, you buy a really good radio or CD player, go to plug in your headphones, and there isn't a headphone jack! You find a line level jack, plug in your headphones, and they sound terrible. Sound familiar?

Most good quality gear lacks an earphone output, or if there is one, it is woefully poor quality. We developed this kit to help us listen to our mixers, reverbs, voice recorders and other audio goodies. We took a pair of LM-386 250 mW audio amplifiers, added volume controls, power supply and a handy, switchable, high-cut filter. A common ¼" stereo earphone jack is used for the output - assuring compatibility with all stereo headphones - and RCA phono jacks accept standard line level input signals. There's plenty of volume and of course, the "Fi" is quite "Hi". Available in money saving kit form or fully wired and tested. Runs on 9 to 15 VDC. Includes an attractive matching case measuring 5"W x 1½"H x 5¼"D. *(Did you know the leading manufacturer of high-end table radios recommends the SHA1 to all their customers?!)*

SHA1C	Stereo Headphone Amplifier Kit With Case	$29.95
SHA1WT	Factory Assembled & Tested SHA1 With Case And Power Supply	$64.95
AC125	110VAC Power Adapter	$9.95

Unbalanced to Balanced Audio Converter   KIT   Wired & Tested

✔ Connect consumer equipment to professional XLR balanced inputs
✔ Separate left and right audio gain adjustments
✔ Very clean and noise free, 10 Hz to 50 KHz

Yes...RCA Phono Output To Balanced XLR!

Use with our new line of LPFM transmitters to allow you to hook consumer equipment into your system. If you're like us, you have a lot of money already invested in audio equipment around the house, and you want to use it for your new LPFM radio station. The problem is that not all of your equipment has enough output level to allow you to mix the equipment properly into your main mixer.

This handy kit will take that consumer audio which is usually fed through RCA type cables, and convert it in amplitude and signal to balanced line levels, while giving you two standard XLR jack outputs to plug your professional audio equipment into. Balanced line levels are much better at rejecting noise and other problems in long signal runs, so you can also use this kit to send your audio signals farther than you could with standard consumer audio connections.

R2XL1C	Unbalanced to Balanced Audio Converter Kit With Case	$59.95
PWR25	12VAC Power Adapter	$9.95
R2XL1WT	Factory Assembled & Tested R2XL1 With Case And Power Supply	$99.95

Tone Grabber Touch-Tone Reader   KIT ───▶   Wired & Tested

- ✔ Built-in RJ11 phone jack for easy hook-up and line monitoring
- ✔ Super fast-capture numbers off the radio, repeater, phone line, etc.
- ✔ Big, bold 8-digit display with automatic insertion of dashes between number groups

Grab Those Numbers Right Off The Air!

Dialed phone numbers, repeater codes, control codes, anywhere touch-tones are used, your TG2 will decode and store any DTMF tone it hears. A simple hook-up to any radio speaker or phone line is all that is required. Since the TG2 uses a central office quality decoder and a FLASH microprocessor, it will decode digits at virtually any speed! The FLASH storage capability of the microprocessor means you can store 640-digit numbers for 10 years - even with the power turned off!

The bright 8-digit LED display lets you scroll through the stored numbers at your leisure. To make it easy to pick out numbers or codes, a dash is inserted between any group or set of numbers that were decoded more than 3 seconds apart. Added features from its TG1 predecessor include an onboard RJ11 phone jack for easier phone line interfacing and an output latch jack offering an external trigger source when a user specified number (1 to 60 digits!) matches the monitored input! The TG2 runs on any 8 to 15 volt DC power source and is both regulated and crystal controlled for the ultimate in stability. Includes the matching professonal case set shown, measuring 5"W x 1½"H x 5¼"D.

TG2C	**Tone Grabber Touch-Tone Reader Kit With Case**	**$69.95**
AC125	**110VAC Power Adapter**	**$9.95**
TG2WT	**Factory Assembled & Tested TG2, With Case And Power Supply**	**$119.95**

KIT ───▶

Make Your Next Project Microprocessor Controlled!

PICPRO Pic Chip Programmer

- ✔ Programs PIC 16C84, F83, F84 microcontrollers
- ✔ Easy hookup-connects to your computer parallel port
- ✔ Includes a simple first project to test your programmer
- ✔ Download Free PICPRO software

You've seen all the super neat projects using the popular PIC series of microcontrollers. Here's a really easy to use programmer to get you up and running fast! PICPRO is our new programmer for the PIC16C84, PIC16F84, and PIC16F83 microcontrollers made by Microchip, Inc. These chips are three of the more popular PIC microcontrollers, whose special feature is that they use flash memory so no UV eraser is needed. They are also programmed by a serial data protocol, making the programmer circuit simple, easy to understand, and easy to use.

What does all this mean to you? It's a breeze! The PICPRO software required to operate the programmer includes editor software, run software, assembler software, and programmer software. All of these, as well as updates, are available on the Ramsey Electronics website. PICPRO is based on NOPPP, a PIC programmer designed by Michael Covington, and featured in Electronics Now, September 1998. Includes the matching case and knob set and AC power supply. Start programming those powerful microcontrollers now!

PIC1	**PICPRO Pic Chip Programmer Kit With Case**	**$59.95**

DTMF Controller Interface   KIT ───▶

- ✔ Remote control from any DTMF device!
- ✔ Call in from the road to turn on your lights...and more!
- ✔ User configurable security code for your protection
- ✔ User feedback tones confirm remote operation success!

Full Control From Any Telephone!

This microprocessor controlled DTMF decoder fits the bill for multiple applications. Remotely control almost any device with the built-in relay circuitry. The DCI series units continually monitor your phone line (or just about any other DTMF audio source) and look for the proper user programmed security code. Once it is heard, the user may select which of the trigger relays to turn on or off (2 or 4 outputs, model dependant). Feedback tones from the DCI are then sent back over the line to confirm your selection. No more wondering if your commands are carried out as is commonly found with other similar devices! Now you can call home and, when your answering machine picks up, control lights, security systems, or just about any number of other custom applications!

The DCI1 is a slim line unit with four 5 Amp (1250VA AC/150W DC) relay outputs, each with its own sure grip screw terminal. Requires 9-18VDC at 300 mA. Our standard AC125 110VAC power adapter is available. The matching case & knob set is included to make your kit look professional and attractive in any setting. *(DTMF, remember those old 500 series desk sets with the bakelite case and the metal rotary dial? You don't? Oh..nevermind I don't either, I'm not that old..really!)*

DCI1C	**DTMF Controller Interface Kit With Case**	**$39.95**
AC125	**110VAC Power Adapter**	**$9.95**

E-Z Check Capacitance Inductance Meter **KIT**

✔ Connects to any digital multimeter for display
✔ Handy push-in test connector for unknown components
✔ Inductance: 10 µH to 10 mH, Capacitance: 2 pF to 2.0 µF

Verify And Measure Values In Seconds!

How many times have you wished you could simply and easily check a capacitor value or select an inductor from an unknown assortment? With the growing popularity of active filters and switching power supplies using critical capacitors and inductors, no shop should be without a reliable and convenient way to measure these parts.

The LC1 capacitance-inductance meter hooks up to any digital multimeter and will allow you to measure inductors from 10 µH all the way up to 10 mH, and capacitors from 2 pF to 2.0 µF. Components to be measured are easily connected to the LC1 through the handy push-in test connector. Our detailed assembly manual guides you to a properly working finished kit and also provides you with ideas on proper capacitor and inductor selection for various circuits. Included with your kit are calibration components to assure proper accuracy of your meter. Uses all CMOS circuitry and is powered by a common 9 volt battery (not included). Includes our nifty matching case set, measuring 5"W x 1½"H x 5¼"D.

LC1C	Capacitance-Inductance Meter Kit With Case	$44.95

Cable Wizard Cable Tester

KIT   **Wired & Tested**

Which Cable Is It? NOW You Know!

✔ Locate and identify any cable from telephone pairs, ethernet, coax, or even your doorbell!
✔ Find that ONE cable in the bundle QUICK!

Did you ever have to identify the "other end" of that cable? Well up to now you had to ohm it out, cable by cable. Now with the Cable Wizard you can quickly identify that cable without even touching the other end! Simply connect the Wizard to the end of the cable you're working with. Then use the Wizard receiver to sniff out the other end of the cable, whether it's close to you...or across an entire building.

The circuit sends out a pulsating signal down the cable which is heard in the receiver when you're close to the cable. All you have to do is hold the probe near the cable, it doesn't get much simpler than that! The transmitter is equipped with a standard RJ45 telco connector for standard 2,4,6 and 8 pair connectors and insulated clip-on leads. WCT20 includes both transmitter and receiver units. Runs on a standard 9VDC battery and includes the custom case set show (transmitter and receiver).

WCT20C	Wireless Cable Tracer Kit	$49.95
WCT20WT	Factory Assembled & Tested WCT20 With Case	$89.95

Peak Hold LED Bargraph Meters **KIT**

✔ Linear, log, or semi-log response scales
✔ Perfect for audio monitoring

Fast Response PLUS Hold!

The PH14 series of LED bargraphs capture peak signals with great results! You can consider these bargraph units to actually be two complete LED bargraphs in one! There is the standard 10 segment bargraph with quick response, and a second set of circuitry expressly designed to catch the peaks and hold them for easy display.

We offer 3 models of the PH series bargraphs: the PH14 Linear display for voltage indication and general use, the PH15 Logarithmic 3 dB/step model for audio and RF power displays and the PH16 Semi-Logarithmic model, ideal for audio VU meters. Includes the custom case set for a neat and professional finished look. Case size: 5"W x 1½"H x 5¼"D.

PH14C	Linear Peak Hold Bargraph Meter Kit With Case	$34.95
PH15C	Log Peak Hold Bargraph Meter Kit With Case	$34.95
PH16C	Semi-Logarithmic Peak Hold Bargraph Meter Kit With Case	$34.95
AC125	110VAC Power Adapter	$9.95

Lead Acid Battery Charger

✔ Automatic ambient temperature compensation
✔ Bright front panel charge indicator
✔ Automatically adjusts charge voltage depending on the battery status

Wired & Tested   KIT

No More "Fried" Gel Cells!

The LABC1 came to life because our shop forklift never starts! Could we have the alternator fixed so the battery would charge? Sure… but where's the fun in that! The problem made us think of a common question asked by our customers "Why am I wasting money replacing those fried Gel Cell batteries long before their expected life span!" Thus the LABC1 was born.

The kit features fully automatic temperature compensation and automatic voltage level adjustment to avoid the dreaded "Over-Charging" scenario often found with other chargers! Whether you're charging your hobby kits' Gel-Cell or topping off the 12 Volt battery on your lawn mower, it's a simple two wire hook-up and walk away! When the battery comes to a full charge, the LABC1 switches into "Float Charger" mode keeping your battery ready for use at its optimal level. To start charging your lead acid batteries the right way and avoid costly replacements, try the LABC1! Requires 14VAC@2A, order the PS21 power supply below. Includes the matching case set, measuring 5"W x 1½"H x 5¼"D.

LABC1C	Lead Acid Battery Charger Kit With Case	$39.95
LABC1WT	Factory Assembled & Tested LABC1 With Case And PS21 Power Adapter	$89.95
PS21	14VAC Output Power Adapter	$19.95

Wired & Tested   KIT

Dr. NiCad Battery Conditioner-Charger

Don't Throw Them Out!

✔ Unique discharge before charge circuitry eliminates "memory effect"
✔ Safety first circuit, with built-in timers and voltage sensors, prevents battery damage

Advanced circuitry has optimized discharge-before-charge to eliminate memory effect and to condition batteries that have been poorly cared for in the past.

Quick charge rapidly brings battery to full charge in less than 1 hour; just 15 minutes for some types! And "top-off" charge mode squeezes every last bit of energy into each cell for the absolute maximum capacity. Switch-mode regulator controls constant current charge while being monitored by a negative delta-V system that cuts off the fast charge at the exact point of full charge...batteries are charged, not cooked! Runs on 12 to 15 VDC at up to 1.5 A. The custom matching case set is included, measuring 5"W x 1½"H x 5¼"D.

DN1C	Dr. NiCad Battery Conditioner and Fast Charger Kit With Case	$44.95
DN1WT	Factory Assembled & Tested DN1 With Case And Power Supply	$79.95

Phone Patch Mixer

NEW FOR 2004!

✔ Send telephone call audio over-the-air!
✔ Stereo line/microphone/phone line mixer!
✔ Automatic gain, automatic noise gating, variable compression!

Wired & Tested   KIT

Mix Your Phone Line, Microphone, And Music Source!

SPECIFICATIONS	
Inputs:	Telephone line, RJ11
	Microphone, ¼" phone
	Stereo line level, (2) RCA phono
Outputs:	Line level out, (2) RCA phono
	Telephone line, RJ11
Controls:	Phone line volume
	Microphone volume
	Line volume
	Phone line mute
	Microphone mute
	Power on/off
Indicators:	Power on LED
	Microphone on LED
	Line output peak LED
Power requirement:	9-15VDC 2.1mm adapter plug
Case/knobs:	Included, 9.55"W x 3.65"H x 12.54"D

Ever wish you could broadcast on-the-air telephone calls like the big guys do? Due to popular demand, and probably the most requested kit idea ever received, we came up with the PPM3 Phone Patch Mixer! This is a perfect match to any of our AM or FM broadcasters! Sure it's easy to plug a music source into any of them, but when you want to add a microphone (after all, you ARE the Disc Jockey of your station!) and then want to put incoming phone calls on-the-air and properly mix them together it becomes difficult! Not anymore with the PPM3.

Simply plug your microphone, phone line, phone, and stereo line level program source into the PPM3. Connect the output to your AM or FM broadcaster's line level input and you're all set! You now have the ability to mix both sides of a phone conversation and control your microphone to equal volumes! Separate independent automatic noise gating and automatic variable gain and compression circuits are used for both the telephone line audio and microphone inputs to assure a great sounding output! The stereo line level mixer features mono injection of phone line and microphone audio for equal balance. Powered by 9-15VDC. *Now when those people call complaining about YOU, put THEM on-the-air!*

PPM3C	Phone Line Interface/Mixer Kit, With Case	$69.95
PPM3WT	Factory Assembled & Tested PPM3C, With Case And Power Supply	$99.95
AC125	110VAC Power Adapter	$9.95

WWV "Atomic" Clocks With Indoor/Outdoor Temperature

NEW FOR 2004!

✔ WWVB time standard with transmission check!
✔ Day, date, month and time to the second, 12/24 hour format!
✔ Wireless remote temperature sensor & display
✔ Wall or desk mount, Aluminum or Oak finish

Wired & Tested

*To The Second
To The Degree
Inside & Out!*

SAC8157

SAC8158

SPECIFICATIONS	
Time:	Radio controlled, hour, minute, second, 12/24 hour
Time Zones:	GMT to -12GMT, all US time zones with zone indicator
Date:	Radio controlled month, date, year, day
Alarm:	Time, with snooze
Indoor Temp:	32°F to 122°F, 0°C to 50°C
Remote Temp:	-21.8°F to 122°F, -29°C to 69°C
Temp Accuracy:	±1.5°F
Weather Forecast:	Weather icons with tendency indicator
Language:	Day display in English, French, Spanish, or German
Remote Transmitter:	433 MHz TX6U transmitter, included
Power Requirements:	Clock 2 AA batteries (not included)
	Remote Transmitter 2 AA batteries (not included)

We looked and looked for a really nice "Atomic" clock. Needless to say, besides the general popularity of having an EXACT time standard clock, our Amateur Radio and broadcast FM customers have yet another need. Not only do they need the time to the second, but they need it in UCT or GMT time. These clocks provide time zones from GMT all the way to -12GMT plus U.S. time zones have a three letter ID!

We didn't stop there! These clocks feature indoor and OUTDOOR temperature with a wireless 433 MHz remote temperature sensor! That's right, with one glance you see your room temperature, outdoor temperature, and the exact time to the second! What else could you ask for! How about the Weather Forecast! Yep, they even feature current weather icons with a weather tendency indicator! Couldn't ask for much more! For our International friends, day information can be displayed in English, French, Spanish or German, and temperature can be displayed in °F or °C. Available in brand new stylish sleek brushed aluminum finish or a polished oak wood finish. All clocks are selectable for 12 or 24 hour format, and include a time alarm with snooze! *(Something I need working on this catalog...snooze button!)*

SAC8157	Atomic Clock With Indoor/Outdoor Temperature, Brushed Aluminum	$64.95
SAC8158	Atomic Clock With Indoor/Outdoor Temperature, Polished Oak	$64.95

"Atomic" Alarm Clocks With Projection Indoor/Outdoor Temperature

NEW FOR 2004!

Wake Up To The Exact Time...And The Weather Outside!

✔ Same WWVB time and indoor/remote temp as above
✔ Adjustable projected time and temperature on wall or ceiling!
✔ Adjustable snooze alarm and backlight for your comfort
✔ Weather forecast version available! **Wired & Tested**

SAC5721

SAC5432

These alarm clocks provide the same Atomic Clock features as our clocks above, PLUS they feature wireless remote temperature display, PLUS, small nightstand size alarm clocks, all in one! All the advantages of a WWVB time standard clock, plus indoor and outdoor temperatures on an Electro-Luminiscent display!

PLUS, they display the time and/or temperature softly and pleasantly on your wall or ceiling so you can always see it! The SAC5432 even adds the weather forecast from the barometric pressure! *(The only problem I have with mine is that I have to get up when it goes off, and nothing helps with that!)*

SPECIFICATIONS	
Time:	Radio controlled, hour, minute, second, 12/24 hour
Time Zones:	GMT to -12GMT, all US time zones with zone indicator
Date:	Radio controlled month, date, year, day
Alarm:	Time, with snooze
Indoor Temp:	32°F to 122°F, 0°C to 50°C
Remote Temp:	-21.8°F to 122°F, -29°C to 69°C, ±1.5°F
Projection:	Projects time or remote temp or alternating
	Projects from 3-10 feet onto wall or ceiling, rotatable
	Projection constantly with AC, on demand with battery
Weather Forecast:	Weather icons with tendency indicator (SAC5432 only)
Backlight:	EL backlight when button is pushed
Remote Transmitter:	433 MHz TX6U transmitter, included
Power Requirements:	AC Transformer included
	Clock 3 AA batteries, remote transmitter 2 AA batteries

SAC5721	Atomic Projection Alarm Clock with Wireless Outdoor Temperature	$59.95
SAC5432	Atomic Projection Alarm Clock With Wireless Outdoor Temperature & Weather Forecast	$69.95

WWV "Atomic" Wristwatches

Wired & Tested

✔ Day, date, month, and time to the second!
✔ WWVB transmission checking
✔ Water resistant
✔ Lithium battery included

Never Set Your Watch Again!

NEW FOR 2004!

Atomic wall clocks, Atomic desk clocks, Atomic alarm clocks...but Atomic Wristwatches? You bet! No larger than a standard digital watch, yet this one is controlled by the WWVB time standard! You will never have to set your watch again! Next time someone asks you what the exact time is, you can tell them. Great for broadcasters who operate by the clock! Multifunction design provides automatic day, date, and month as well as time to the second. Even provides automatic switching to Daylight Savings Time if desired. Features WWV transmission checking, low battery indicator, and internal time memory. Available in five attractive designs.

RSAW10T	Digital Multifunction Atomic Wristwatch, Titanium Color	$59.95
RSAW10B	Digital Multifunction Atomic Wristwatch, Black	$59.95
RSAW10W	Digital Multifunction Atomic Wristwatch, Silver	$59.95
RSAW10L	Digital Multifunction Atomic Wristwatch, Round, Leather Strap	$49.95
RSAW10S	Digital Multifunction Atomic Wristwatch, Stainless	$59.95

Wireless Professional Weather Stations With Atomic Time

✔ Wireless remote sensors
✔ Weather data history storage and retrieval!
✔ Ultra functional PC software and interface
✔ Wall or desk mount, Gray or Oak finish

Wired & Tested

Professional Features... Yet Inexpensive!

NEW FOR 2004!

WS2315

WS2310

SPECIFICATIONS

- WWVB time display with manual setting
- WWVB controlled calendar
- Display of extensive weather data, in all cases with programmable alarm functions for certain weather conditions as well as records of all minimum and maximum values along with time and date of their recordings
- Indoor and outdoor temperature display in degrees Fahrenheit or Celsius
- Indoor and outdoor relative humidity displays
- Air pressure reading in inHg or hPa, absolute or relative
- Detailed display of rainfall data in 1 hour, 24 hours, total since last reset in inches or mm
- Wind speed in mph, km/h, m/s, knots or Beaufort
- Wind direction display with LCD compass as well as numerical (e.g. 225°) and abbreviated characters (e.g. SW)
- Wind chill temperature display
- Dew point temperature display
- Weather forecast display by weather icons (sunny, cloudy, rainy)
- Weather tendency indicator
- Storm warning alarm
- LED back light
- COM port for easy connection to your PC
- All the weather data from the base receiver station and up to 175 sets of weather history data (with user adjustable measuring intervals) can be recorded and uploaded to your PC
- Dimensions: 6.1x 1.2 x 6.3 inches

Last year, our professional wireless weather station became very popular. It provided all the data you could ask for, and then some. The emails started pouring in about how great it was. But at the same time, we also heard from some customers who didn't need all the bells and whistles, but wanted professional features! We looked, and looked, and finally found it! The new 2300 series Professional Weather Stations!

They include WWVB atomic time so you'll always be dead-on to the second! Putting time and all those features aside we took a long hard look at the weather features. First, it had to be wireless. You got it! You mount the included Thermo-Hydro Sensor/Transmitter outside, and that transmits all your data at 433 MHz to your main display unit. But what if you have interference or a large coverage area that just doesn't hack it? Simply put, you can ALSO plug in standard modular cable (included) to run to the main unit as a primary or backup to the wireless connection! It only gets better from there. The other sensors (wind and rain) connect via a similar modular connector to the main transmitter to give you only one wireless carrier to worry about! So if you do have interference problems you can run that one modular cable inside the house and it will provide all the data from all the sensors! Pretty slick!

How can it get better than that? Simple, with one serial connection all the data is displayed and stored on your PC! Not only is the software included but so is the serial cable! You plug it in and have the most incredible display of all your weather. Each major function also has a history mode to display up to 175 sets of weather history on both your main display and your PC. Of course the history file can be exported to your favorite spreadsheet! Give up? Well, you shouldn't. You can also use the Publisher sofware to FTP the weather data from your PC as an image to any web server or email address to report remote weather data!

Wind Sensor

Thermo-Hydro Sensor/Transmitter (Battery or AC)

Rain Sensor

The WS2310 features a stylish gray finish with an array of display access buttons down the side. The WS2315 is a stylish oak trimmed unit with multi-function display controls at the bottom of the unit. Either unit will perform like a champ! If you're looking for reliable weather data, stored and dated min/max readings, with a great PC interface, these are for you!

Of course, if you're looking for the ultimate wireless remote weather system, check out our WS2510 Touch Screen system on page 36! *(I love this stuff and when they came in the first thing I did was summon an engineer to put the sensors on the roof. Within 5 minutes I had the screen captures you see below on a PC! These are GREAT!)*

Included PC Software Screen Display

History Data File Screen Display

Software Publisher for site/web/email screen display

Actual Screen Captures From The PC Software Display!

Check It Out!

WS2310	Wireless Professional Weather Station With All Sensors And PC Software, Gray Trim		$299.95
WS2315	Wireless Professional Weather Station With All Sensors And PC Software, Oak Trim		$319.95

**Find out how cold it really is at our factory in Rochester, NY!
Check out the remote weather display at www.ramseykits.com
It's live, and quite often COLD!!!**

Professional Touch-Screen Weather Center

✔ Ultra professional Touch-Screen
✔ 433 MHz wireless & solar powered installation
✔ Solar powered sensors and transmitters!

NEW FOR 2004!

Wind Sensor

Temperature/Humidity Sensor

Wired & Tested

Rain Sensor   Lux Sensor

SPECIFICATIONS	
Temperature range:	Indoor 32°F to 158°F (0°C to 70°C)
Temperature range:	Outdoor -22°F to 158°F (-30°C to 70°C)
Temperature accuracy:	±2°F (±1°C)
Humidity range:	20% to 95%
Humidity accuracy:	±4%
Barometric air pressure range:	23.62 to 32.48 InHg (800 to 1100 hPa)
Air pressure accuracy:	±0.03 inHg (1 hPa)
Wind speed range:	0-124 mph (0-200 km/h)
Wind speed accuracy:	±3% or ±0.6 mph (±1km/h)
Rainfall range:	0 to 157.4 in (0 to 3999 mm)
Rainfall measurement:	0.0145 inches per tip of bucket
Rainfall accuracy:	±2%, ±0.04 in (±1 mm)
Measuring Interval:	3 minutes
Transmitting frequency:	433.92 MHz
Range in open space:	330 feet (100 meters)
Power requirements:	4"AA" Alkaline batteries or via power converter (included)
Sensor Power:	Solar powered
Temperature Zones:	Up to 8 Temp/Humidity sensors

With the popularity of our previous professional weather center, we weren't sure how to top it. Well, we did! The ultimate professional Touch-Screen system! Uses solar powered wireless sensors throughout. Just plug it in, set up the sensors, and you're in business. Instantaneous readout of all weather data, and touch screen control of all functions and historical data.

One of the newest features is the "brightness" in Lux sensor! Often asked for, and seldom found until now! Just look through the detailed specs, and see what this reads and records! Plus, you can add additional temperature/humidity wireless sensors for up to 8 zones! Perfect for large areas, inside separate rooms, inside garages, and more! All sensors are wireless and talk back to the main unit at 433 Mhz. And do you have to put batteries in them? Of course not, they're solar powered! Sorry, the main display requires (4) AA batteries or can be used with the included power supply (solar power doesn't work too well in the house!). If you want to have the weather at your fingertips, and the capability to have professional quality historical data, then the the WS2510 is for you. Want to tie it into your PC for detailed weather display? No problem, the WS2510 includes a PC output and software to provide you realtime transmission of all your data to a PC. Included third party software gives you every possible option you can think of for a computer display. If you're really serious about the weather, then the WS2510 is for you!

✔ Includes Touch Screen display, (4) sensors and mounting hardware
✔ Indoor temperature, humidity, and pressure (internal sensor)
✔ Wireless outdoor temperature and humidity sensor
✔ Eight possible wireless temperature and humidity transmitters (indoor and outdoor)
✔ LCD back light
✔ Touch-Screen panel for data access
✔ Minimum/maximum data for all readings with time and date recorded
✔ History for all data can be viewed on chart (from 24 hours to eight days)
✔ Air pressure display with 24 hour bar chart history
✔ Weather forecast icon and pressure trend indicator
✔ Wireless rain gauge (solar powered) tracking rainfall amount for last hour, last 24 hours and total amount
✔ Wireless wind-gauge (solar powered) tracking speed and direction
✔ US/metric option for all data
✔ Lux sensor for light measurement
✔ Current outdoor brightness from 0 to 200,000 Lux
✔ Simultaneous display of all weather information
✔ Manual set time and date
✔ Solar-powered outdoor sensors with rechargeable Lithium battery backup (included)
✔ Includes (1) WS2010-15 wind-gauge, (1) WS2010-16 rainfall sensor, (1) WS2010-20 indoor temp & humidity sensor, (1) WS2010-25 outdoor temp & humidity sensor, (1) WS2510-Lux Solar Sensor, all solar powered and wireless
✔ Free standing or wall hanging display

WS2510	Professional Touch Screen Weather Center and 4 Sensors	$699.95
WS2510EX	433MHz Extender, Receives All Signals and Re-Transmits Them To Your Display	$119.95
WS2510IT	Extra Indoor Wireless Temperature/Humidity Transmitter	$39.95
WS2510OT	Extra Outdoor Wireless Temperature/Humidity Transmitter	$79.95
WS2510PR	Weatherproof Temperature Probe (For water, soil, etc.)	$76.95

Wireless Weather Forecaster

NEW FOR 2004!

✔ Indoor/outdoor temperature & humidity
✔ WWVB Atomic time
✔ Barometric forecast

Wired & Tested

Wireless Temperature & Humidity!

You get the basic features of our professional wireless weather centers at a fraction of the price! This attractive desk or wall mounted forecaster gives you indoor temperature and humidity. The 433 MHz remote sensor provides outdoor temperature and humidity. Three remotes can be used for zoned display. Weather forecast is provided with the unique weather icon based on barometric pressure. WWVB controlled clock includes dual time alarms with snooze. Main display requires 2 AA batteries and the remote temperature/humidity sensor requires 2 AA batteries. Multiple time zones and temperature formats are selectable. Measures 3.2" x 1.1" x 5.7".

WS7026	Wireless Weather Forecaster	$95.95

Super-Fun 130 In 1 Electronic Lab

✔ No prior knowledge of electronics needed!
✔ Solderless connections for safe assembly
✔ Build 130 different circuits and see them work!
✔ Includes a comprehensive instruction & theory manual written for the youngest novice to understand!

KIT

Start A Great Hobby In Electronics!

For 30 years, Ramsey has provided educational hobby kits giving thousands and thousands of kids their start in electronics. We've searched and searched for an Electronics Lab specifically designed to teach the youngest experimenter the fun and excitement of electronics. The PL130 does just that! Learn the basics and theory of electronics the fun way, while building 130+ projects that you actually see working when you're done! The detailed 162 page instruction manual covers the hows and whys of every circuit, theory, parts identification, and description. We've looked at a lot of these kits, and have turned them down because of the documentation. This one is a winner!

Winter Super Sale Expires 01/15/04

LOTS OF PROJECTS? YOU BET!

Electronic Woodpecker
The Chirping Bird
Electronic Cat
Sonic Fish Caller
Machine Gun Pulse Oscillator
Electronic Motorcycle
Two-Tone Patrol Car Siren
Electronic Siren
Electronic Metronome
Electronic Grandfather Clock
Light-Controlled Electronic Harp
Horror Movie Sound Effects
Strobe Light
Rapid LED Display Switching (Persistence Vision Test)
Capacitor Discharge/High Voltage Generator
Capacitors in Series and Parallel
Resistors in Series and Parallel
Light Dimmer
Transistor Switcher
Transistor Circuit Action
Sound Amplifier
Flip-Flop Multivibrator with LED Display
Seven-Segment LED Digital Display Circuit
Basic LED Display
Transistor Control Switching of the LED Display
Transistor, CDS Cell and LED Display Circuit
Diode-Transistor Logic AND with LED Display
DTL OR Circuit with LED Display
DTL NAND Circuit with LED Display
DTL Exclusive OR Circuit
Transistor NOR Circuit with LED Display
Transistor Flip-Flop Circuit
Transistor Toggle Flip-Flop
Transistor-Transistor Logic Buffer Gate
TTL Inverter Gate
TTL AND Gate
TTL OR Gate
TTL Exclusive OR Gate
TTL NOR Gate
TTL Three-Input AND Gate
TTL AND Enable Circuit
TTL OR Enable Circuit
TTL NAND Enable Circuit

TTL R-S Flip-Flop
Toggle Flip-Flop Circuit Made from NAND Gate
TTL Line Selector
TTL Data Selector
TTL Astable Multivibrator
TTL Tone Generator
Winking LEDs
A One-Shot TTL
Transistor Timer with TTL
Buzzin' LED
Son of Buzzin' LED
Set/Reset Buzzer 1
Set/Reset Buzzer 2
Sound Machine
Big Mouth
Shot in the Dark
Variable R-C Oscillator
Oscillator with Turn-Off Delay
Temperature-Sensitive Audio Oscillator
Two-Transistor, Directly Connected Oscillator
Push/Pull Square Wave Oscillator
Pencil Lead Organ
LED Strobe Light
Electronic Organ
Daylight Early Bird
Intermittent Alarm Generator
Comparator
Basic Increase in DC Voltage
Constant-Current Source
Integrating Circuit
Schmitt Trigger Circuit
Noninverting Two-Power Supply Amplifier
Inverting Two-Power Supply Amplifier
Noninverting Single-Power Supply Amplifier
Two-Power Supply Differential Amplifier
Tone Mixing Amplifier
Power Amplifier Using Operational Amplifier
Voltage Controlled Oscillator Circuit
Operational Amplifier Buzzer
Burglar Alarm
Hand-Operated Sweep Oscillator
Falling Bomb Sound
Emergency Siren
First Aid Siren

Musical Tempo Generator
Operational Amplifier Winking LED
LED Flashing Light
Two-LED Winker
One Shot Light
LED Initials
Wake Up Siren
Voice-Activated LED
Logic Tester
Alternating Current Sound
Light Control Sound Circuit
Sound Alarm Circuit
Study Timer
Kitchen Timer
Three-Input AND Gate Using Operational Amplifier
Voice Level Meter
Power-On Reset Circuit
Delayed Timer
Pulse Frequency Doubler
White Noise Generator
DC-DC Convertor with Operational Amplifier
Code Practice Oscillator with Tone Control
Crystal Set Radio (Simple-Diode Radio)
Two-Transistor Radio
Wireless Code Transmitter
AM Radio Station
Operational Amplifier Radio
Aural Continuity Tester
Conductivity Tester
Transistor Checker
Sinewave Audio Oscillator
Low Distortion Sinewave Oscillator
Twin-T Audio Oscillator
Pulse Oscillator Tone Generator
Audio Signal Tracer
Radio Frequency Signal Tracer
Square Wave Audio Oscillator
Sawtooth Wave Oscillator
Rain Detector
Water Level Buzzer with Operational Amplifier
Metal Detector
Water Level Alarm
Three-Step Water Level Indicator

This Lab is a perfect start to a great new hobby in electronics, whether it's for you, your kids, or your friends. *When these came in, I took one home to my 13 year old son, and he went wild! Then he built the SWL Radio Kit (SR3, Page-40) and listened to overseas radio broadcasts for the first time. He's now asking me what surface mount technology is all about! (Sure beats him glued to the TV playing video games...except for that Electronic Cat!)*

PL130   130 In 1 Electronics Lab With Comprehensive Learning Manual   **$34.95** $39.95

KIT

Complete 300 In 1 Electronic Lab

✔ Build 300 exciting electronic projects
✔ Solderless connections for safe assembly
✔ No tools required!
✔ 165 page comprehensive instruction & theory manual!

300 Projects Plus The Theory!

After we introduced our PL130 lab kit, we were amazed at the customer response. Hundreds and hundreds were ordered, and re-ordered by everyone you could imagine! From parents for their kids, to grandparents for THEIR kids and grandkids! The response has been the same..."THEY LOVE IT!". We've expanded our line to include this 300 in one lab kit, and the 500 in one lab kit on page 39. Just like the PL130, this lab includes an incredible 165 page comprehensive manual covering the construction of EACH project and the theory behind it.

Includes ALL of the projects in the PL130 PLUS THE FOLLOWING:

Surprise and Fun
Light-Controlled Bird
A Transistor Radio
Sound Scooper
American Patrol Car Siren
Digital Roulette
IC Organ

Back to the Basics
Light Telegraph
Introducing the Resistor
Parallel Resistor
Meet the Diode
The LED-a Special Diode
The Electronic Gas Tank
Meet the Transistor
Transistor as switches
PNP Transistor Switch
NPN Transistor Switch
Delay Light
Night Light
Electronic Timer
Capital Letter Display
Small Letter Display
Number Display

Electronic "Building Blocks"
An Inverter Circuit
Meet the OR Gate
Introducing the AND Gate
Using the NOR Gate
Meet the NAND Gate
How a Multivibrator Works
A "One-Shot" Multivibrator
An R-S Flip Flop
Meet the Oscillator
Changing Oscillation with Capacitor
Changing Oscillation with Foreign Substance
More about Oscillator
A Push-Pull Oscillator

Putting Electronics to Work
CdS Controlled Oscillator
Frequency Shift Oscillator
Motion Detector
Door Alarm
Rapid LED Display Switching
Code Practice Unit
Current Switch
Two-Tone Buzzer
Astable Multivibrator
Monostable Multivibrator
Code Practice Unit
The Noisy Light
Hearing Aid Amplifier
Light/Sound Code Practice Unit
Light Controlled Burglar Alarm
DC-DC Converter
Count Down Timer
Transistor Frequency Doubler
One Transistor Full-Wave Rectifier

Radio Circuits
"Crystal Set" Radio
"Funny Transistor" Radio
Remote Water Level Detector
IC Radio
Morse Code Transmitter
AM Transmitter
Broadcasting Organ

Sonic Zoo and Sound Factory
Plant Growth Stimulater
Electronic Woodpecker
Fish Caller
Electronic Raindrops
Machine Gun Pulse Detector
Chirping Bird
Electronic Bird
"Horror Movie" Sound Effect
Sound Machine I
Sound Machine II
Multi-Tone Siren
Digital Rhythm
Two-IC Electronic Organ

Electronic Decision-Makers
Majority Logic Gate
Electronic Coin Toss
Electronic Coin Toss II
Electronic Coin Toss III
Even or Odd
Quick Draw Game
Close-In
ESP Tester
The Light Fantastic
Shooting Game
Marching LEDs
Electronic Dice
Electronic Roulette

Operational Amplifier IC Can Do Many Things
Meet the VCO
Silicon Diode Solar Cell
Astable Multivibrator Using OP Amplifier
Pulse Generator
Experiment of Comparator
Comparator with Hysteresis
Constant Current Sources by OP Amplifier
Non-Inverting Adder
Touch Switch Using OP Amplifier
Early Bird
DC-DC Converter by OP Amplifier
Inverting Amplifier
Non-Inverting Amplifier
Differential Amplifier
Differential Output Amplifier
Power Amplifier Using OP Amplifier
Balanced Transformerless Amplifier
Three-Stage Differential Amplifier
VCO Using OP Amplifier

Voltage Controlled Amplifier
V-F Converter
F-V Converter
Sweep Generator
Multiple-Function IC Project
Sound Alarm
Photo Organ
Vibrato Organ

Introducing the Power Amplifier IC
IC Power Amplifier
IC Power Amplifier II
Oscillator Using Power Amplifier IC
CdS Controlled IC Oscillator
Phase Shift Oscillator
Intercom
A Water Service Pipe Sound
Electronic Klaxon
Wide Range Audio Frequency Oscillator

A Trip to Digital Land
Switching Circuit
RTL Inverter
RTL Buffer
RTL OR Gate
RTL AND Gate
Transistor OR Gate
Transistor AND Gate
Transistor XOR Gate
Special NAND Gate
DTL OR Gate
DTL AND Gate
DTL NOR Gate
DTL NAND Gate
DTL Exclusive OR Gate
C-MOS Inverter
C-MOS Buffer
C-MOS OR Gate
C-MOS AND Gate
C-MOS 3-Input And Gate
C-MOS NOR Gate
C-MOS 4-Input NOR Gate
C-MOS 4-Input NOR Gate II
DeMorgan's Theorem
Experiment of Threshold Voltage
NAND/NOR and Transistor Switch

More Adventures in Digital Land
C-MOS XOR Gate
C-MOS NAND Enable Circuit
C-MOS AND Enable Circuit
C-MOS OR Enable Circuit
A One-Shot NAND Gate
C-MOS Line Selector
C-MOS Data Selector
C-MOS R-S Flip Flop
C-MOS Flip Flop II
Set/Reset Buzzer
Set/Reset Buzzer II

Set/Reset Buzzer III
Transistorized Toggle Flip Flop
NAND Toggle Flip Flop
J-K Toggle Flip Flop
C-MOS Astable Multivibrator
C-MOS J-K Flip Flop
C-MOS D Flip Flop
C-MOS D Flip Flop II
R-S-T Flip Flop
T Type Flip Flop
C-MOS Latch
Shift Register
Touch Switch Using NAND Gate
Half Adder
D-Latch
2-Line to 4-Line Decoder
Multiplier
Dual 2-Input Multiplexer
Two-Stage Frequency Divider

Circuits That Count
Basic Counter
Synchronous Counter
Asynchronous Counter
Counter with Line Decoder
Divide by 4 Counter
Divide by 4 Counter with Line Decoder
How a Line Decoder Works
Multiple Counter
Binary Counter with Display
Divide by 3 Counter Display
Divide by 4 Counter Display
Up/Down Counter
Down Counter
Decade Down Counter
Decade Down Counter with Display
Presettable Counter
Hexadecimal Counter
Octal Counter
Random Access Display
Decade Counter
BCD Counter with Display
Octal Counter with Line Decoder
Octal Counter with Display
Decade Counter with Display
Decade Counter with Display II

Getting Closer to Computers
BCD to 7-Segment Decoder
Full Adder
Decimal to Binary Encoder
Binary to BCD
Octal to BCD
Hexadecimal to BCD
3-Bit Shift Register

Amusement in Digital Land
VCO by NOR Gate
Pulse-Delayed Circuit
NAND Gate Tone Generator
Transistor Timer
Noise-Signal Discriminator

Pulse Stretcher
Bidirectional Buffer
Various Inverters
Electronic Switch
Tone Burst Generator
Digital Timer
Digital Timer II
Ten Count Buzzer
Press First
Target Range
Catch the Eight
SOS Alert
Wheel of Fortune
Leapin' LEDs

Shakehands of Analog and Digital
Pulse Number Modulation Light Dimmer
Pulse Width Modulation Light Dimmer
DC-DC Converter Using the C-MOS Oscillator
Absolute Value Amplifier
Window Comparator
Digital Light Dimmer
A-D Converter
D-A Converter
Photometer with Digital Display
Surprise and Fun Revisited
Experiment of Electromagnetic Induction
Electronic Candle
Constant Current Circuit
A Phony Counter
Alphabet Flasher
Winking LEDs II
Delayed Timer II
Crossing Signal
Octave Generator
Sound Out Timer
Sound Stop
Big Mouth!
Light or Sound
Be Your Own Multivibrator
Anticipation
Set/Reset Match

Testing and Measuring Circuits
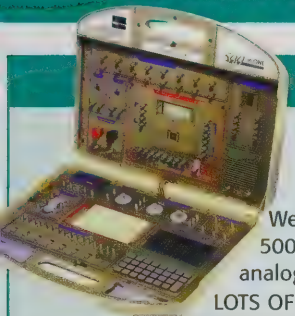Circuit Continuity Checker
Acoustic Ohmmeter
Audio Signal Generator
Temperature-Sensitive Audio Amplifier
Water Level Detector
Battery Checker
IC Oscillator/Component Tester
Voltage Drop Alarm
Current Shut-Down Circuit
Logic Checker
Logic Checker II
Temperature Alarm
Function Generator

PL300	300 In 1 Complete Electronics Lab With Comprehensive Learning Manual	$59.95 $64.95

Advanced 500 In 1 Electronic Lab

Winter Super Sale Expires 01/15/04

Advanced Learning Courses Plus 500 Separate Projects!

✔ 152 page starter course manual!
✔ 78 page advanced course manual!
✔ 140 page programming course manual!
✔ Quality hinged case construction

We went one step beyond our 300 in one lab kit! Yes, 500 in one, PLUS comprehensive learning course manuals! Build 500 exciting projects, learn schematics, build and learn both analog and digital circuits, and even get into digital programming. 500 projects, 370 pages of comprehensive course manuals, and LOTS OF FUN! *Includes* <u>ALL</u> *of the projects in the PL130* <u>AND</u> *the PL300* <u>PLUS</u> *THE FOLLOWING:*

Back to the Basics
Capacitors in Series and Parallel

Electronic "Building Blocks"
Low Distortion Sinewave Oscillator

Putting Electronics to Work
Strobe Light
Electronic Grandfather Clock
Electronic Metronome
Twin-T Audio Oscillator
Current Switch
Shot in the Dark
Variable R-C Oscillator
Two-Tone Buzzer
Sawtooth Wave Oscillator

Radio Circuits
Wireless Code Transmitter

Sonic Zoo and Sound Factory
Two-Tone Patrol Car Siren
Pencil Lead Organ
Electronic Motorcycle
Machine Gun Pulse Detector
Electronic Siren
Electronic Cat
Electronic Organ

Electronic Decision-Makers
Majority Logic Gate
Electronic Coin Toss
Electronic Coin Toss II
Electronic Coin Toss III
Even or Odd
Quick Draw Game
Close-In
ESP Tester
The Light Fantastic
Shooting Game
Marching LEDs
Electronic Dice
Electronic Roulette

Operational Amplifier IC Can Do Many Things
Integrating Circuit
Pitch Doubling Circuit
Pitch Doubling Circuit II
Comparator
Schmitt Trigger Circuit
Delayed Timer
Pulse Frequency Doubler
Touch Switch Using OP Amplifier

Surprise and Fun Revisited
Experiment of Electromagnetic Induction
Winking LEDs
Voice Level Meter
Buzzin' LED
Son of Buzzin' LED

Testing and Measuring Circuits
Audio Signal Tracer
Metal Detector
Rain Detector
Burglar Alarm
Temperature-Sensitive Audio Amplifier

Learn Basics More
A Basic of Control Volume
Emitter Follower
Basic Operation of Zener Diode
Zener Voltage Checker
Zener Voltage Checker II
Basic Photo-Transistor Operation
Voltage Drop Circuit by Means of Diodes
Experimentation of Capacitor
Temperature Characteristic
Darlington Circuit (Touch Sensor)

Edge-Trigger Circuit
RC Type Differentiating Circuit
Switch Matrix Circuit
Memory Backup Circuit
Power on Reset Circuit
Constant-Voltage Circuit (Fixed Output)
Constant-Voltage Circuit (Variable Output)
A Rectifier Circuit by Diode Bridge
AGC Circuit Using a Single Transistor
Upper/Lower Limiter Circuit Using OP Amplifier
Window Comparator II

Amusement on Sound
Multi-Tone Siren
Digital Rhythm
Two-IC Electronic Organ
A Water Service Pipe Sound
Electronic Klaxon
Sound Machine III
Sound Wave Varying with Light Intensity
Player Organ
Sound of Passing Siren
Light Source Sensing Circuit by Sound
Electronic Piano Circuit
Whistle Generating Circuit
Space Gun
Car Horn

More Radio Circuits
Morse Code Transmitter
Broadcasting Organ
FM Transmitter (FM Wireless Microphone

To The Game World
Quiz Winner Detector
Reflex Nerve Test Game
Shooting Game II
Shot In The Dark II
Sound Quiz
Stop the Seven
High-Power Switch
"Lockout, Mr. Blackbeard!" Game
Russian Roulette
Mole Hitting Game
"Janken" Game
Ping-Pong Game

More Adventures in OP Amplifier Circuits
Voltage Controlled Amplifier
V-F Converter
F-V Converter
F-V Converter II
White Noise Generator
Sweep Generator
Multiple-Function IC Project
Sound Alarm
A Sound of Ripples
Photo Organ
Vibrato Organ

More About Oscillation
Phase Shift Oscillator
Wide Range Audio Frequency Oscillator
Sawtooth Wave Oscillator II
Three Phase Oscillator
Wien-Bridge Oscillator
Ramp Wave Generator
Digital Sine Wave Generator
Frequency-Variable Sine Wave Generator
Sine Wave Oscillator Using D-A Converter
RC Phase-Shift Oscillator
Two Sine Waves with Different

Phases
One-Shot Multivibrator Using IC 555
One-Shot Multivibrator Using J-K Flip-Flop
One-Shot Multivibrator Using OP Amplifier
Shakehands of Analog and Digital
Pulse Number Modulation Light Dimmer
Pulse Width Modulation Light Dimmer
DC-DC Converter Using the C-MOS Oscillator
Photometer with Digital Display
Pulse Width Modulation Light Dimmer II
Voltmeter

Getting Closer to Computer
Full Adder
Decimal to Binary Encoder
Binary to BCD
Octal to BCD
Hexadecimal to BCD
3-Bit Shift Register
BCD-To-Decimal Decoder
More Digital Circuits
4-Input Data Selector
AND/OR Circuit Using OP Amplifier
XOR Using OP Amplifier
Time Sharing Display of LEDs
LED Lighting-Duty Varying Circuit Using One-Shot Multivibrator
LED Blinking-Cycle Varying Circuit Using Astable Multivibrator
LCD Static Drive Circuit
LCD Dynamic Drive Circuit
Testing LCD Display Response
LED Drive by 4 Switches
Flashing LED by Preset Number
Digital Timer (1 to 7 Minutes)
Sound Timer
Programmable Timer with Down Counter

Amusement in Electronic Circuits
Revolving Light
Photo Switch
Door Chime
Visitor Sensing Chime Using Photo-Transistor
Touch VCO
Sound Tuning Circuit
Crossing-Bell Sound Generator
Turn Indicator
Staircase Light Switching Control Circuit
Pseudo Candle Circuit
Lie Detector
Light Sensing Circuit
Automatic Lighting LED
Sound Sensing LED
Illumination Lamp
Intercom
PIP Sound Interphone
Electronic Volume
Pedestrian Signal
Time Counter
Led Display Counting Up/Down Circuit
An Electronic Pendulum
Staircase Light Switching Control Circuit II
Lamp Brightness Control Circuit
Illumination Circuit with 4-LEDs
A Simulated Car Winkers

Testing and Measuring Circuits
Battery Checker
Conductivity Tester
Transistor Checker
Three-Step Water Level Indicator

Tachometer
Battery Checker II
Digital Illuminometer

Software Projects
Light LEDs
Light On/Off LEDs
A Binary Counter-Increment Value by ADD Instruction
A Binary Counter-Decrement Value by SUB Instruction
Light LEDs Sequentially with AND Instruction
Light LEDs Sequentially with OR Instruction
Turn On and Off LEDs Sequentially with XOR Instruction
Moving LEDs Light with ROL Instruction
Moving LEDs Light with ROR Instruction
Night Rider's LEDs with ROL/ROR Instructions (1)
Night Rider's LEDs with ROL/ROR Instructions (2)
Binary Counter with INC Instruction
Binary Counter with DEC Instruction
Sound Do as Do, Re, Mi
Sound a Series of Musical Scale
Let's Input Data to Program
Hidden Key Triggers Sound and Turns All LEDs On
Stacked MOV Instructions
Changing Order of LEDs by Switch
A Musical Scale Sound by S1 Key
Arithmetic Addition of of Two Binary Values
Arithmetic Subtraction of Two Binary Values
Arithmetic Multiplication of Two Binary Values
Arithmetic Division of Two Binary Values
Displays Number 0 to 9 on 7-Segment LED (2)
Change Order of Numbers Display on 7-Segment LED (2)
Switches S1-S4 Light Hex Number On 7-Seg LED
8-Key Organ
Lighting Spade, Diamond, Heart, and Club on the LCDs Display (Basic)
Lighting Spade/Heart and Diamond/Club on the LCDs Display
Lighting Spade, Diamond, Heart, and Club by Static Drive Circuit
Lighting Spade, Diamond, Heart, and Club by 1/2 Duty-1/2 Bias Circuit
Lighting Spade/Diamond and Heart/Club by 1/2 Duty-1/2 Bias Circuit
Lighting Spade/Diamond and Heart/Club Alternately by 1/2 Duty-1/2 Bias Circuit
Lighting Spade, Diamond, Heart, and Club by 1/2 Duty-1/2 Bias Circuit
Results of Logical Operations AND, NAND, OR, and NOR
Results of Logical Operations XOR and XNOR
Results of Logical Operations AND/NAND with 4-Switch Entry
Results of Logical Operations with OR/NOR 4-Switch Entry
Results of Logical Operations with XOR/XNOR 4-Switch Entry
Logical AND/NAND Gate for Driving External Circuit
Logical OR/NOR Gate for Driving External Circuit

Logical XOR/XNOR Gate for Driving External Circuit
Find a Leading Edge of Input Pulse
Finding a Trailing Edge of Input Pulse
Finding a Leading and Trailing Edge of Input Pulse
A Pulse Stretcher
Starting a Delayed Pulse
Pulse Stretcher By Counting a Clock
Counting External Pulse To Advance Decimal Counter
Displays Number 0 To 9 on 7-Segment LED (1)
Change Order of Numbers Display on 7-Segment (2)
Counts an External Clock (1)
Counts an External Clock (2)
Counts an External Clock (3)
Counts an External Clock (4)
Counts an External Clock (5)
Counts an External Clock (6)
3-Minute Timer
Multi-Function Timer (1)
15-Minute Timer with 7-Segment Display
Multi-Function Timer (2)
Digital Organ with PHOTO-TRANSISTOR (1)
Digital Organ with PHOTO-TRANSISTOR (2)
Digital Volume Changer (1)
Digital Volume Changer (2)
Digital Volume Changer (3)
Digital Volume Changer (4)
Digital Volume Changer (5)
Illumination Controlled by PHOTO-TRANSISTOR (1)
Illumination Controlled by PHOTO-TRANSISTOR (2)
Illumination Controlled by Oscillator and PHOTO-TRANSISTOR (1)
Illumination Controlled by Oscillator and PHOTO-TRANSISTOR (2)
Illumination with Speed Control (1)
Illumination with Speed Control (2)
Sawtooth Waveform Generator
Triangular Pulse Generator
Digital Level Indicator
Digital Lux Meter (Display In Binary)
4-Bit A/D Converter (Display In Binary)
4-Bit A/D Converter (Display In Hexadecimal On 7-Segment LED)
Digital Lux Meter (Display In Hexadecimal)
Audio Level Meter
Audio Level Meter with Peak-Holding Capability
Lighting Sign Board
Digital Dice
Digital Roulette
Digital Slot Machine
Up/Down Counter
Digital Metronome
Frequency Counter
Dynamic Lighting of 7-Segment LED
Lighting LED with Pulse Width Modulation
Majority Logic Gate (2)
Lighting LCD Segments by Static Drive
Digital Buzzer
Rhythm Box (1)
Rhythm Box (2)
Rhythm Box (3)
Rhythm Box (3)

| PL500 | 500 In 1 Advanced Electronics Learning Lab With Advanced Course Manuals | $149.95 $159.95 |

AM/FM/SW Radio Learning Kits

✔ Learn to build your own AM, AM/FM or SW radio!
✔ Discover how radios work!
✔ Listen to the results!
✔ Safe solderless assembly!

KIT

AM2 *AMFM7* *SR3*

Winter Super Sale *Expires 01/15/04*

As the "Little Brothers" to our 130 In 1 Lab Kit (PL130, Page-37) our Radio Learning Kits teach you the fundamentals of modern radio theory and operation, and give you a working radio when you're done! There's nothing like the feeling of accomplishment when you get all done, plug in the battery, and hear it work! Yes, you did it yourself! Our Radio Kits are available in AM Broadcast, AM/FM Broadcast, and AM Shortwave models. Take your pick! All operate on a standard 9V battery.

AM RADIO

Our AM2 AM Radio kit uses two transistors, 4 resistors and 5 capacitors including a variable capacitor to provide a highly sensitive AM Broadcast Radio. It covers 520 KHz to 1625 KHz and is easy to assemble with safe, solderless connections. The 18 page comprehensive learning and assembly manual covers everything from theory to parts identification and operation.

AM/FM RADIO

Our AMFM7 AM/FM Radio kit is the next step up from our AM2 kit above. It features the same quality AM radio and adds a factory assembled and aligned FM tuner to cover the 88 MHz to 108 MHz FM broadcast band. Utilizes 2 transistors, 5 resistors, 6 capacitors, 1 diode, and 1 coil to provide reception in either band. The AMFM7 is easy to assemble with safe, solderless connections. The 20 page comprehensive learning and assembly manual covers everything from theory to parts identification and operation.

AM SHORTWAVE

Our SR3 Dual Band AM Shortwave Radio Kit takes you away from the local AM/FM broadcasters and brings you into the exciting world of Shortwave Radio Listening (SWL)! The preassembled and aligned tuner section adds to the 2 antennas, 4 capacitors, 4 resistors, 1 transistor, and 1 variable capacitor to provide a sensive Shortwave Radio covering 6 MHz to 8 MHz and 12 MHz to 18 MHz. The SR3 is easy to assemble with safe, solderless connections. The 20 page comprehensive learning and assembly manual covers everything from theory to parts identification and operation. Operates on a standard 9V battery (not included).

AM2	AM Radio Kit With Comprehensive Learning Manual	$11.95	$14.95
AM/FM7	AM/FM Radio Kit With Comprehensive Learning Manual	$14.95	$19.95
SR3	AM Dual Band Shortwave Radio Kit With Comprehensive Learning Manual	$14.95	$19.95

Entry Level Learning Kits

✔ Learn the basics of electronics and electricity!
✔ Discover how to listen to AM radio without a battery!
✔ Understand and build a working motor!
✔ Learn how and why bells work...and build one!

KIT

Start With The Basics!

Go back in time and discover how radio was first received! Learn the basics of electric motors including forward and reverse action. And while everyone has heard them, learn exactly how a bell works, and then build one yourself! These beginner kits are ideal for the inquisitive mind that wants to know "how and why it works". No previous experience in electricity or electronics is required, and all kits use safe, solderless connections.

Winter Super Sale *Expires 01/15/04*

CRYSTAL RADIO SET

The crystal radio was discovered in 1901. It is still the basis of modern-day radio and communications equipment and lives on in a wide variety of radio systems. Go back in time, and learn how radio detection was first done! Without a battery or power supply, you will hear AM broadcasts with your Crystal Radio Set! Crystal radios don't need a power supply - they're powered by the radio waves broadcast by the radio station and are endlessly fascinating because of their simplicity and their complexity! They contain so few parts yet display so many concepts. The comprehensive 16 page manual covers everything from how it works, why it works, and illustrated assembly instructions. Assembly is easy with solderless connections, and no previous electronic experience is necessary. Relive history with a Crystal Set today!

MOTOR ACTION KIT

Learn the basics of an electric motor with our MA1 Motor Action Kit. Learn what makes motors spin, how to control forward and reverse in a motor, and then build one that works! Includes a fan blade and a color disk to learn how to mix color with a spinning disk! This is a great kit for the kids and for the beginner to learn just what makes the world go round! Easy assembly with solderless connections. Requires two AA batteries (not included).

BELL ACTION KIT

Ding-a-ling...is that a bell? Yep, we've all heard them, but do you know exactly how they work? Our BA1 Bell Action Kit is a perfect learning kit for the beginner or the curious! Learn what makes a bell ring, explore how electromagnetism is used, and how you can change the ringing characteristics of a bell! This kit is fun and safe, using solderless connections. Requires two AA batteries (not included).

CS2	Crystal Radio Kit	$7.95	$9.95
MA1	Motor Action Kit	$6.95	$8.95
BA1	Bell Action Kit	$6.95	$8.95

QRP Mini-Receivers

✔ Sensitivity of approximately one microvolt rivals the big rigs!
✔ Covers 500 KHz of selected band
✔ Receives CW, SSB and AM
✔ Plenty of audio output, drives any speaker or phones

KIT

Get In On The Action...For Under $40!

These little rigs are burning up the airwaves as young and old alike are rediscovering the fun in building their own equipment! Our detailed, step-by-step instruction manuals make building an enjoyable and rewarding experience. You're guided carefully to the completion of a unit that not only works, but will provide hours of operating pleasure. These trusty and proven Ramsey all mode mini rigs are routinely used worldwide by Hams of all ages. You 'll find you don't need high power - K71RK worked and QSL'd all states, plus global DX QSOs from Argentina to the former USSR—with only 2 mW! You don't need hundreds of watts, thousands of dollars or massive equipment; you'll find it's more fun with less! These little receivers are based upon the SA-602 that we read about in Ham magazines and handbooks. The receivers are true superheterodyne direct conversion - a simple design that does not require the use of fancy IFs, RF filters, or exotic mixers; in short, the ideal design for easy hobby building. Only recently have high performance ICs become available that enable such circuitry to be constructed. Beginners can easily build these receivers. And, experienced amateurs and QRP enthusiasts can use them as a reliable, economical, basic foundation for modifications. Our single PC board has plenty of room for lots of modifications and hook-ups - tinker to your heart's delight. Suggestions and technical info are included in every receiver manual. Isn't this what Ham radio is all about? Operates on 9 V battery (not included). Included case measures 5"W x 1½"H x 5¼"D".

HR20C	20 Meter Receiver Kit With Case	$39.95
HR30C	30 Meter Receiver Kit With Case	$39.95
HR40C	40 Meter Receiver Kit With Case	$39.95

QRP Mini-Transmitters

KIT

Work The World On A Watt!

✔ Four transistor circuit, oscillator, RF amplifier chain, and clean keying stage
✔ RF output of approximately one watt (3/4 W for QRP20)
✔ Pi-network output for good matching and harmonic suppression
✔ Provision for two internal crystals (one crystal provided), front panel switching
✔ VCXO tuning, frequency can be tuned approximately 7 KHz around XTAL frequency

These nifty little CW transmitters are practical and economical take-along rigs for trips, camping, teaching or just amazing yourself with what a watt will do! With exceptional manual of over 20 pages, the detailed step-by-step instructions guide you to a perfectly operating finished transmitter. The rigs use a standard crystal that is connected into a VCXO circuit - which means that you can tune around the crystal's frequency by up to 20 KHz - thus giving you stable crystal control while still being able to tune around! A front panel switch lets you choose between two crystals, we include one, you can add another of your choice. A built-in T-R switch allows break-in operation. Of course, these transmitters interface perfectly with our QRP Mini-rig receivers and our CMOS CW keyer! And for the real Ham, there's plenty of room inside the included case for your own circuit modifications and experiments. These little rigs are often the heart of many QRP operator's stations. Modify "till-the-cows-come-home," or just use 'em as they are - these little rigs pack a lot of performance into an economical package. Runs on 12 VDC at 200 mA.

QRP20C	20 Meter Transmitter Kit, Includes 14.060 MHz Xtal And Case	$39.95
QRP30C	30 Meter Transmitter Kit, Includes 10.108 MHz Xtal And Case	$39.95
QRP40C	40 Meter Transmitter Kit, Includes 7.040 MHz Xtal And Case	$39.95
AC125	110VAC Power Adapter	$9.95

QRP Linear Amplifiers

KIT

✔ Works great with Ramsey QRP rigs or any other 1-2 watt transmitter
✔ Built-in T/R relay automatically switches between receive and transmit
✔ Operates all modes; CW, SSB, or AM

Cut Through The QRM With 20 Watts!

Need a little extra boost for your QRP rig? This nifty little amplifier may be all you need. Believe it or not 20 watts is only 7db (about one S unit!) less power than a full sized commercial transceiver. These compact amplifiers are easily driven by any of our QRP transmitters or any other unit in the ½ - 2 watt range. Advanced power MOSFETs are used for the utmost in efficiency and purity, while a multistage low pass filter is used to assure a clean signal output. Power required is only 12 VDC at 2 to 4 amps, depending upon power output. Complete step-by-step instructions are provided which makes building the kit a breeze. The amplifier works well for all modes: CW, SSB and AM. Case included.

QAMP20C	20 Meter QRP Amplifier Kit With Case	$49.95
QAMP30C	30 Meter QRP Amplifier Kit With Case	$49.95
QAMP40C	40 Meter QRP Amplifier Kit With Case	$49.95

2-Meter FM Transmitter

✔ 4-5 watts RF output
✔ Both data and mike audio inputs
✔ Runs on 12-14 VDC, <1 amp
✔ Built-in test points to make alignment easy
✔ Crystal at 1/9 transmit frequency
✔ Direct FM with varactor modulation
✔ Spurious and harmonics down 60db
✔ Can operate anywhere from 140-160 MHz

True Direct FM At 4-5 Watts!

Fed up with the high cost and unavailability of two meter transmitters? If you've been having to rip apart a whole rig just to get a transmitter that will get the job done around the clock, the FT146 is for you. Designed for repeaters, remote bases, data transmission, and even paging, you'll find the FT146 ideal as a low cost reliable transmitter.

Direct FM is used to assure error-free data and excellent voice modulation characteristics. Transmit frequency is crystal controlled for proper stability and a crystal oven can be used for applications that demand "better-than-commercial" quality accuracy. You'll find the FT146 easy and fun to build. Our detailed instructions carefully describe each step and there's a complete technical discussion of all circuitry to satisfy even the most demanding! We've built-in test points throughout the FT146 to make alignment easy-in fact, the only equipment you'll need is a multimeter. Comes complete with crystal for 146.52 MHz, additional crystals available. Set aside an evening to accomplish this kit and be proud to say, "I built it myself!" Includes our matching case set for a complete, factory assembled professional look. Measures 5"W x 1½"H x 5¼"D.

FT146C	Two Meter FM Transmitter Kit With Case	$74.95

Low Cost, Easy To Build!

Mini VHF Receiver

✔ Tunes any 5MHz portion of selected receiver band
✔ Excellent performance, less than 1µV sensitivity
✔ True Superhet Receiver with sharp ceramic IF filters
✔ Front panel volume, squelch, and tuning controls
✔ Great starter kits for novice Hams

You get a lot for your money with any one of these dual-conversion FM receivers. In just one evening of building fun you can be snooping around the band monitoring the local repeater, checking out new bands, or even eavesdropping in on the local police and businesses. There are no short cuts taken in the design of these units-sensitivity is equal to full size monitor receivers or scanners. Schools, scout troops, clubs and hobbyists use these receivers for teaching, monitoring, and just plain building enjoyment. Any one of these little receivers are ideal for easy chair listening, and with no big clunky box and wiring to aggravate the XYL! All four receivers can be tuned outside of the intended amateur bands. For example, the FR146 two meter receiver will tune any 5 MHz segment from 130 to 180 MHz. Choose your band and enjoy FM repeater and simplex monitoring on a budget! Help a newcomer discover the 220 MHz novice band. Listen in on exciting 10 Meter international FM action. Rediscover the fascination of 6 Meter sporadic E band openings and uncrowded new FM repeaters. For a professional finished look, our matching case and knob set is included. Kit includes detailed step-by-step manual that carefully guides you to a finished working radio. Runs on 9V Battery.   Case measures 5"W x 1½"H x 5¼"D.

FR146C	2 Meter Receiver Kit With Case	$44.95
FR6C	6 Meter Receiver Kit With Case	$44.95
FR10C	10 Meter Receiver Kit With Case	$44.95
FR220C	220 MHz Receiver Kit With Case	$44.95

2-Meter Receiver Preamp

✔ 2 Meter Preamp with the sharpest filtering available
✔ Can be powered up the signal coax (9 to 15 VDC)
✔ Helical filter for fantastic inter-mod rejection

Here's the ideal preamp for repeaters, base stations, mobiles - anywhere a selective low noise signal boost is needed. Unlike other preamps the PR100 features extensive RF filtering to crush intermod before it reaches your radio. Two poles of sharp Helical filtering combined with a 3 pole L-C tank allow only signals of interest to reach your receiver. A low noise microwave bipolar transistor provides an excellent 1 dB noise figure while remaining ruggedly insensitive to static and strong signals. Preamp is easily configured to be powered via the coax (for mast mount applications) or powered through a separate power cable. Kit is designed to fit snugly into a 3" long piece of 1 ½" PVC pipe with end caps, making an ideal outdoor enclosure. Runs on 9 to 15 VDC . Size: 4"w x 7/8"h x 1 3/8"d.

PR100	2M Preamp Kit	$34.95

Low Cost Receiver Preamps

✔ Low noise (typically < 1 to 1.5 dB)
✔ High Q tuned circuits (very narrow band) prevent out-of-band signals from overloading front-end

Put some new 'ears' on your rig with one of these hot little preamp kits. Their high gain combined with low noise will improve most any receiver. Fully protected against overload and designed for low current and stable operation they employ high Q tuned circuits which restrict out-of-band signals which can cause intermod blanking and overload of your radio's front-end. Don't be misled by GaAs FET claims! The cheap dual-gate FETs (manufactured for TV tuner usage!) used by others just don't come close to the performance of these preamps designed with NEC microwave transistor devices. Gain is typically 16 to 20 dB and noise figure is 1 dB @ 2 Meters, 1.2 dB @ 220 MHz, and 1.4 dB @ 440 MHz. Compact design for easy installation into most any rig. Operates on 12 to 15 VDC . Size: 1" x 3/8" x 1 ½".

PR10	2 Meter Preamp Kit	$14.95
PR20	220 MHz Preamp Kit	$14.95
PR40	440 MHz Preamp Kit	$14.95

High Performance Yagi Antennas
KIT

✔ Construction that's rugged and simple
✔ Feed point fully watertight and sealed
✔ Cut elements during assembly to exact frequency desired

Commercial Quality...
At A Hobbyist's Price!

Joe Reisert, WIJR, probably the best known VHF'er, has entered into the antenna business with a killer line of Yagis. Joe sent us a couple of antennas to check out and were we impressed! We've got some pretty decent HP test gear here at the plant and measuring his antennas was a delight. Talk about a match at 50 ohms impedance; even our $1800 EMI antenna couldn't come close to one of Joe's antennas.

Model	Elements	Gain	F/B Ratio	Length	Frequency
140-3	3	5 dB min	20 dB min	3 ft	140 - 300 MHz
400-4	4	7 dB min	15 dB min	2 ft	300 - 500 MHz
918-4	4	7 dB min	14 dB min	1.2 ft	902 -928 MHz

Construction is rugged and simple. Joe wisely made the feed point fully watertight and sealed the coax right into it - no more antennas that go flaky when the weather's bad. Another nice feature is the ferrite sleeve balun, most often left out on other antennas. You'll find no coax radiation with this Yagi. In short, these are the finest 3 and 4 element Yagis on the market - we guarantee it! *(Got one of these at 900 MHz...works great!)*

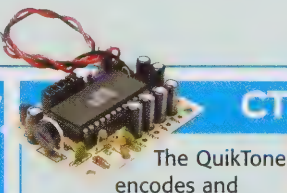|		
1403	**Yagi Antenna, 140-300 MHz**	**$79.95**
4004	**Yagi Antenna, 300-500 MHz**	**$79.95**
9184	**Yagi Antenna, 902-928 MHz**	**$109.95**

2-Meter Power Amplifier
KIT

✔ 10 times power gain!
✔ 4 Watts in, 40W output!

The PA1 will give you a ten times power gain, 2 watts in for 20 watts out, 4 in for 40 out. Power required is 12 to 14 volts DC at 5 amps with 40 watts out. Add the optional T/R switch and receiver preamp for added performance!

PA1	**Two Meter Power Amplifier Kit**	**$39.95**
RFS1	**RF Sensed TX/RX Relay Kit**	**$19.95**
PR10	**Two Meter Preamp Kit**	**$14.95**

CTCSS Encoder/Decoder

✔ Digital frequency generation for no drift!

The QuikTone encodes and decodes any of the 39 standard CTCSS tones. Jumpers allow easy frequency programming and built-in digital audio filtering eliminates falsing and interference from normal speech. The QT1 uses the latest single chip CMOS technology, runs on 5 to 15 volts DC at very low current and is a small 2 x 1½ inch size.

KIT

QT1	**CTCSS Encoder/Decoder Kit**	**$44.95**

Foxhound Direction Finder

KIT

Track Down Those Hidden Transmitters

✔ Pin diode switching of antennas, coupled with filters, determine direction of source signal as indicated by a pair of LEDs
✔ Sensitive metering allows easy "zeroing-in" on transmitter!
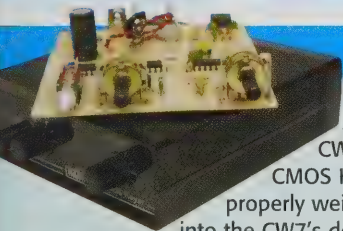
The Foxhound connects to any radio through the speaker jack and antenna connector and will allow you to easily zero in on the exact direction of an unknown transmitter, be it aircraft, two-way radio, Ham or even TV. The Foxhound uses a pair of telescopic whip antennas which are manually turned (by you!) until the sensitive meter indicates the lowest reading. This direction finder uses the latest technology for trouble-free, solid operation. The antennas are alternately switched on and off using PIN diodes. The outputs are then passed thru a high-Q audio filter and synchronously detected for phase shift. A pair of LEDs tell you in which direction you should rotate the antennas- to the right or left. We provide the telescopic whip antennas and ask you to provide a two foot long "boom" on which to mount them. And, as an added feature, we've included an automatic T-R switch! The T-R switch is ideal for handie-talkie usage; if you wish to transmit with your radio - go ahead, the Foxhound will sense your transmitter power and automatically switch itself out of the circuit while you talk. Be the one with the answers, win those transmitter hunts, track down the jammers; you'll do it all with your Foxhound! Operates on internal 9 Volt battery or 12VDC, via a 2.1mm female power jack. Includes a custom case set for super-nice looking finished kit! *(No foxes were injured or harmed during DF1 development!)*

DF1C	**Foxhound Direction Finder Kit With Case**	**$74.95**
AC125	**110VAC Power Adapter**	**$9.95**

Easy-Key CW Keyer

✔ Works great on any rig

KIT

Add to your CW fun with our low cost CMOS Keyer Kit. Self completing dots and dashes with properly weighted spacing and timing are all programmed into the CW7's design. Built-in sidetone, adjustable pitch, front panel speed and volume controls. You need to supply an external set of paddles (detailed in manual). 9V battery operation.

CW7C	**CW Keyer Kit With Case**	**$34.95**

Code Practice Oscillator

✔ Learn the code, great starter kit

Learn CW, It's Fun! **KIT**

This little code practice oscillator is easy to build, easy to use, and features an audio tone adjustment for your listening pleasure. Using the ever popular 555 timer chip and the straight key paddle you are in full control of the output tone length and pitch. Size 3 ½" x 1½" x 3/4". 9V battery not included.

CPO3	**Code Practice Oscillator Kit**	**$14.95**

Low Bander Low Frequency SWL Converter

KIT — **Wired & Tested**

Tune In
The Exotic Low Freq RF Band!

✔ Explore the world below 400KHz!
✔ Easy hook-up with built-in antenna switch
✔ Works with any short wave radio

Everyone has a high performance general coverage SW radio, but who needs a converter for LF? YOU do! You'll be amazed; there are a ton of exciting signals down there with hundreds of beacons from around the world along with time and frequency standards from various governments.

There are lots of hobbyists running in the one watt license-free band and the FCC is even considering a Ham band with 200 watt power! Many newer SW receivers say they will receive down low, but check the specs - just because it tunes down to 100 KHz doesn't mean it can actually hear anything there! Most receiver front-ends optimized for HF don't work well at LF. We designed the lowbander to hear it all, a 7 pole low pass filter along with an overload resistant switching mixer squashes spurious birdies and annoying interference.

Hook-up is a snap, with built-in antenna switching between regular and LF antennas. All signals are converted up to 4 MHz, so if you want to hear 136 KHz - just tune your rig to 4.136 MHz - it's that easy. We give you antenna hints as well as web links for info on the exciting world below 400 KHz! For a great finished looking converter, we include the custom matching case set. Runs on 12VDC, order our matching AC125 power supply. *(While we said low frequency, no this won't pick up audio or even your dog whistle. . . you can only go so low!)*

VLF1C	Low Frequency SWL Converter Kit With Case	$39.95
VLF1WT	Factory Assembled & Tested VLF1 With Case And Power Supply	$69.95
AC125	110VAC Power Adapter	$9.95

Doppler Direction Finder

Wired & Tested — **KIT**

✔ Track down jammers and hidden transmitters with ease!
✔ Elegant and cost effective design thanks to WA2EBY! Featured in May/June 1999 QST Magazine
✔ Convenient LED 22.5 degree bearing indicator
✔ Adjustable damping rate, phase inversion, scan enable/disable
✔ Utilizes latest high speed CMOS technology for signal conditioning and audio processing!

Winter Super Sale
Expires 01/15/04

Track Them Down...
Quick!

Get in on the fun of radio direction finding (RDF) with this super kit ! The latest in affordable Doppler direction finding equipment available in a complete kit form ..this one even includes the receiving antenna assembly! A must for the "fox hunter" at an unheard of price! Radio direction finding is a fascinating hobby and is becoming more and more popular in today's portable world.

With the increasing number of intentional jammers and other unknown transmitters around, Doppler DF locators have become the rage with a display that gives you a direct bearing on the location of the transmitter. Pretty neat trick considering you don't need multiple separate receivers at different locations to triangulate on the mystery transmitter! The kit includes the Doppler Direction Finder display unit, and all the parts necessary to build your own four point, 5 piece magnetic antenna assembly for easy setup and use. Operates on 12VDC, and includes a matching 12VDC power plug for custom integration and connection into your vehicle or portable power supply. Easy to hook up to any FM receiver. Transmitter (the object of your DF'ing) need not be FM, it can be AM/FM or CW.

Requires only a connection to your receiver's speaker jack and radio's antenna. The whips can be cut and optimized for any frequency from 130-1000 MHz. An easy to build, reliable kit that compares most favorably to commercial units costing upwards of $1000.00! Comes complete with matching case, 12VDC plug, magnetic antenna kit with cables, and a comprehensive instruction manual. *(Sorry, the Dodge Stratus above isn't included, my daughter totaled it!)*

DDF1	Doppler Direction Finder Kit, With Case, Power Cable, And Magnetic Antenna Kit	$149.95	$169.95
DDF1WT	Factory Assembled & Tested DDF1 With Case, Power Cable, And Magnetic Antenna Kit	$229.95	$269.95

Broadband Discone Antenna

✔ Omni directional wideband antenna
✔ Covers 450-2500 MHz frequency range
✔ Very small size

Wired & Tested   KIT

Broadband & High Efficiency... With Or Without Preamp!

The ideal antenna for scanners and other wideband UHF receivers. Discones have long been used by the military in high performance UHF applications due to their small size, very wideband operation and omni directional pattern. Expressly designed for wideband UHF and low microwave signals such as those from all the latest wireless communications devices.

The wide bandwidth of this antenna is required for maximum efficiency in receiving the multitude of fascinating signals that are left behind with poorer performing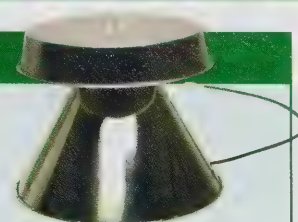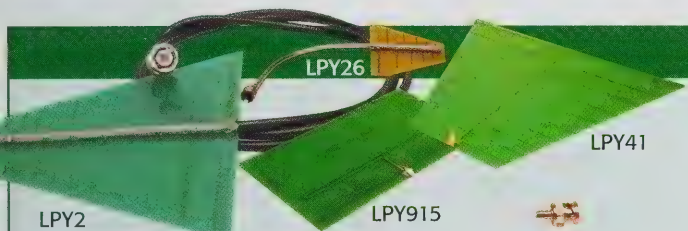 "standard" receiving antennas. The omni directional pattern covers a full 360 degrees, making it the ideal antenna for reception over a wide area. A sensitive, yet very resistant to overload, preamplified version is also available if you are looking for maximum receiving range.

What an investment, if you ever give up your need for an antenna, you can always bake your Cinnamon Rolls in the top element! (But I get the middle one with all the frosting!)

DA25	Discone Antenna Kit, 450-2500 MHz	$34.95
DA25WT	Discone Antenna, 450-2500 MHz, Factory Assembled & Tested	$49.95
DAP25	Discone Antenna Kit with Built-In Preamplifier, 450-2500 MHz	$49.95
DAP25WT	Discone Antenna with Built-In Preamplifier, 450-2500 MHz, Factory Assembled & Tested	$69.95

Precision Printed Circuit Antennas

Wired & Tested

Broadband And No Tuning!

✔ Small thin size with excellent performance
✔ Very directional—ideal for transmission or reception use
✔ No tuning needed!
✔ Rugged FR-4 construction

This series of Log Periodic and Yagi PCB Antennas allow you to cover the entire spectrum from 400 MHz to 6.0 GHz! If you want to get the maximum performance out of your UHF to low frequency microwave wireless system, one of these little babies is the answer! Their directional property "compresses" the signal into a powerful beam that is 4 times more powerful in the desired direction.
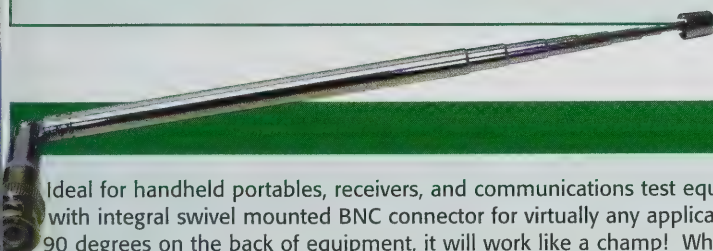
They are the ideal antennas for scanners, wireless LAN's, and other wireless devices. When you need a dedicated point-to-point link, they have no equal!

Maintenance free construction on rugged FR-4 material boasts the added advantages of no tuning and no fragile antenna elements to break or twist! The small size and wide bandwidth make them ideal for feeding reflector antennas such as easily constructed corner reflectors or parabolic grids. Pick the one that's right for you and start enjoying the fruits of a well designed system!

The Log Periodic models LPY41 (400-1,000 MHz, SMA-female), LPY2 (900-2,600 MHz, BNC-male), and the LPY26 (2,100-6,000 MHz, SMA-male) easily interface to your system via the provided connectors. The wide bandwidth characteristics of the Log Periodic design ensure total reliability within their respective ranges.

The Yagi model LPY915 (915 MHz, BNC-male) is a patented design perfect for directionally extending the range of your cordless phone or other 915 MHz wireless device. Finally, the answer to those poor range blues! *(So I put the LYP2 in the last catalog and the web, and we found people buying them and reselling them on EBay for 10 times our price! I guess congrats to the entrepreneur who thought of that, and the the stupid award goes to the people that bought them!!! Editor's comment!)*

LPY41	Logi Log Periodic PCB Antenna, 400-1,000 MHz, Factory Assembled & Tested	$39.95
LPY2	Logi Log Periodic PCB Antenna, 900-2,600 MHz, Factory Assembled & Tested	$34.95
LPY26	Logi Log Periodic PCB Antenna, 2.1-6.0 GHz, Factory Assembled & Tested	$34.95
LPY915	Directional Yagi PCB Antenna, 915 MHz, Factory Assembled & Tested	$29.95

Telescopic Whip Antenna

Wired & Tested

✔ High quality with BNC connection
✔ Covers VHF and UHF bands

Ideal for handheld portables, receivers, and communications test equipment. Professional chrome finish with integral swivel mounted BNC connector for virtually any application! From the top of equipment to 90 degrees on the back of equipment, it will work like a champ! Whip extends 5.25" to 27.75" to cover a wide variety of ranges with ease!

| WA10 | Telescopic Whip Antenna | $14.95 |

Mini-Kits...Fast, Easy, FUN!

Mini-Kits are handy, easy-to-build, easy-to-use functional kits that can be used alone or as building blocks in larger, more complex designs.

Electronic Dripping Faucet

✔ Makes a great repeating "plink" sound!
✔ Create a pleasant alarm signal

Drip, Drip, Drip!

It's somewhere between a dripping faucet and the electronic chime "dinger" in a new car! The EDF1 makes a pleasant but very attention getting repeating sound! "Plink, plink, plink, plink" just like the water faucet dripping into a bowl of water! Use it for anything that requires a "different" audio alarm signal, or simply to drive your friends nuts! Plus, you will learn how a simple transistor oscillator together with the eternal 555 timer IC can make such a sound! Runs on 4-9 VDC and has a speaker level output to drive any small speaker. *(That O-Ring assortment at the hardware store WON'T fix it!)*

| EDF1 | Electronic Dripping Faucet Kit | $9.95 |

Super Snoop Amplifier

✔ Booster amps for radios, Walkmans, etc.
✔ High sensitivity long distance listening
✔ Powerful 2 Watt audio output

Super High Gain!

Here's a super sensitive amplifier that will pick up a pin drop at 15 feet! It's an ideal general purpose amplifier, too. Full 2 watts audio output is great for boosting low power receivers and radios, and when wired for high gain, makes an excellent room monitor or big ear shotgun mike amp... easy to listen in on "wildlife' both in the field and in the city! User supplied power from a 6 to 15 VDC filtered power supply rated for at least 500 mAmps or batteries, drives any speaker. Size: 1½" x ½" x 1 ½".
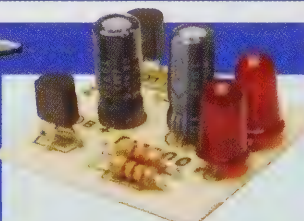
| BN9 | Super Snoop Amplifier Kit | $9.95 |

Tickle-Stick

✔ Small enough to fit in the palm of your hand, but unlikely you'll hold this after building it
✔ Easy way to establish territorial limits for friends, foes, even pets...

Get The Shock Of Your Life!

Tickle or stimulator - take your pick... once you grab it, you'll let go quick!! Mount this little kit, plus a secret switch - like a mercury tilt switch - in an ingenious can or box and watch the fun. Adding a bright ribbon bow is remarkably effective at baiting the unwary! The kit has a pulsing 80 volt tickle output and a mischievous blinking LED. And who can resist a blinking light! Great fun for your desk, "Hey, I told you not to touch!" workbench, or coffee table. Runs on 3 to 6 VDC (not included). This kit has become a fixture at our Hamfest displays, providing us, and others who are in the know, hours of fun. Size: 1½" x 3/4" x 2½".

| TS4 | Tickle Stick Kit | $12.95 |

LED Blinky

✔ Ideal starter kit to tweak a child's interest
✔ Hundreds of applications...model railroads, hats, badges, toys, etc.
✔ Thousands and thousands sold!
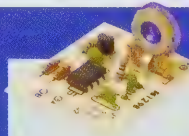
Great Starter Kit!

Alternately flashes two jumbo red LEDs; this is the kit you've seen on name badges, buttons, hats, and toys. But, there's more to it than that. Add a couple of relays and Christmas light strings and you've got yourself a super light chaser just like the theater marquee, or add a zener diode and make an attention getting overvoltage warning light. Kit runs on 3 to 15 VDC (not included).

| BL1 | LED Blinky Kit | $7.95 |

Electronic Siren

✔ Drives any speaker
✔ Duplicates the wail of a police siren

Just Like A Police Siren!

Look out, here come the cops! Nope, only you and this siren kit. The SM3 siren exactly duplicates the upward and downward wail of a police siren. Runs on 6 to 12 VDC and is a loud 5 watts. Drives any speaker, but a horn type gives best results. Surprise your kids, or wife - if you live dangerously.

| SM3 | Electronic Siren Kit | $7.95 |

Universal Timer

✔ Use as a Timer or Osc.
✔ Triggered by positive or negative pulses

IC Switching...$10.00!

Add a time delay, keep something on for a preset time, provide timing or clock pulses, or provide an audio oscillator for tones or code practice. This little kit does it all using the 555 timer chip and adding negative or positive pulse triggering and on-board timing pots and capacitors. We give you complete instructions on how to apply this timer to your project! Runs on 5 to 15 VDC and controls loads up to 100 mA. 1¼" X 3/4" X 1 3/4"

| UT5 | Universal Timer Kit | $9.95 |

Warble Alarm

✔ Loud and clear with 15 watts of power !
✔ Drives any speaker

The Mad Blaster!

Need to break a lease, cause trouble or just plain get attention? The mad blaster is the answer, producing a LOUD, ear shattering, raucous racket. Super for car and home alarms, ball games, or any place where attention is needed fast. Runs on 9 to 12 VDC and drives any type of speaker, although a horn type speaker is the most efficient and will give the most noise. Size: 1 1/8" x 1 ¼" x ½".

| MB1 | Warble Alarm Kit | $9.95 |

Voice Switch

✔ Directly switches relays or low voltage loads to 100 mA
✔ Use noise or your voice to control!

Automatic VOX!

Voice activated switch (VOX) kit will provide a switched output when it 'hears' sound. Use it to key a transmitter for hands-free PTT, or turn on a tape recorder automatically when people are talking in a room. Kit runs on 6 to 12 VDC and drives up to a 100 mA load such as a relay, tape recorder motor, or transmitter key line. Size: 2 ½ "x ½" x 1 ¼".

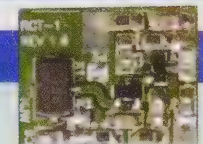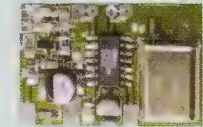| VS1 | Voice Activated Switch Kit | $9.95 |

RF Wireless Link Modules

Wired & Tested

Now you can build those special remote control projects in a flash, and have the ultimate in reliability...and security! Unlike other units on the market, these units are crystal controlled for no frequency drift, yet are ultra small and very low power. These wireless RF link boards are perfect for any wireless application- sending data, car alarms, door openers, home security, electronic monitoring...you name it. Monitor a test point or an alarm point on a circuit, and have it alert you remotely, the applications are endless! Optional encoder/decoder models allow you to program each unit so that they only respond to your set code. Great for encoding sensors or controlling various functions wirelessly - no other processor or computing required! All modules are pre-assembled and tested so you can start your project today! Two versions are available - 433 MHz and 916 MHz, 916 units can use shorter antennas (3 inches) and are better in high RF environments, while the 433 units have better range but need larger antennas (7 inches).

TX Data Transmitter

RX Data Receiver

NEW for 2003! A-Series modules include a programmable dip switch for encoder/decoder settings, and common dual row pin-outs for easy integration into your equipment! *(No, these do NOT send audio or video!!! There, saved you the email!)*

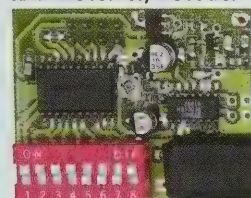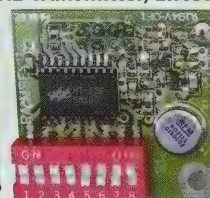|		
RXD433A	433 MHz Receiver/Decoder Module w/Dip Switch	$39.95
TXE433A	433 MHz Transmitter/Encoder Module w/Dip Switch	$37.95
RXD433	433 MHz Receiver/Decoder Module, Assembled	$34.95
TXE433	433 MHz Transmitter/Encoder Module, Assembled	$32.95
RX433	433 MHz Data Receiver Module, Assembled	$29.95
TX433	433 MHz Data Transmitter Module, Assembled	$24.95
RXD916	916 MHz Receiver/Decoder Module, Assembled	$34.95
TXE916	916 MHz Transmitter/Encoder Module, Assembled	$32.95
RX916	916 MHz Data Receiver Module, Assembled	$29.95
TX916	916 MHz Data Transmitter Module, Assembled	$24.95

RXD Receiver/Decoder TXE Transmitter/Encoder

RXDA Receiver/Decoder   TXEA Transmitter/Encoder

Tone Encoder/Decoder

✔ Encodes and Decodes
✔ Tunable from 40 Hz to 5000 Hz (extendible down to 10 Hz)
✔ Drives any load up to 100 mA

40 Hz to 5 KHz! **KIT**

All your tone control needs on a single PC board. Kit will simultaneously decode and/or encode any frequency from 40 to 5000 Hz, (add a small capacitor to go down as low as 10 Hz) Great for PL tones, remote controls, tone burst FSK, anywhere tones are involved. Frequency is easily set with the precision 20 turn trimpot, and the circuit uses a voltage regulator and Mylar cap for the ultimate in stability. Runs on 5 to 12 VDC , will drive up to 100 mA load. Size: 1¼" x ½" x 1½".

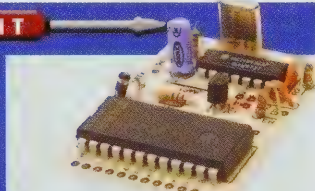|		
TD1	**Tone Encoder/Decoder Kit**	**$9.95**

Touch-Tone Decoder **KIT**

✔ Decodes DTMF Touch Tones from telephone, radio, etc.
✔ 20 mA output drives relays, LED's, digital devices, etc.
✔ Decodes 0 thru 9, *, #, plus A,B,C,D

You can strap the TT7 for detection of any single digit, including the secondary A,B,C,D digits. When the decoder detects the selected digit it will provide a closure to ground for driving a relay, lamp, sounder, or other such load of up to 20 mA. A commercial central office quality decoder IC chip is used, making the TT7 extremely reliable, fast, and sensitive. You may connect the TT7 directly across the speaker or detector output on any receiver, and in fact, we even detail how it may be connected directly to a telephone line. If your needs are simply single function remote tone control, the TT7 is for you. (For digital display of dialed touch-tone numbers, use our TG2 Tone Grabber on page 31, for remote control, use our DCI series, also on page 31). Runs on 5VDC. Size: 1½" x 7/8" x 2¼".

TT7	**Touch Tone Decoder Kit**	**$24.95**

Visit us... www.ramseykits.com

Touch Switch

✔ Drives loads up to 100 mA

2 Separate Circuits!

Touch once - it's on, touch again - it's off, or use the momentary outputs that stay on only as long as touched. Uses low power CMOS circuitry and functions on the principle of hum and noise pick-up when input is touched. Will drive loads up to 100 mA such as relay, bell, siren, etc, runs on 6 to 12 VDC, kit includes info on using as a key for CW keyers. And...there are two completely independent touch switch units on each kit PC board: it's like getting 2 for 1!

KIT

TS1	**Touch Switch Kit**	**$9.95**

RF Preamp

✔ Broadband... from 100 KHz to 1000 MHz !
✔ High Gain: > 20 db Low noise < 4dB !

Broadband!

This is the famous preamp that's been written up in all the radio and electronics magazines. New low-cost microwave transistors make it possible to give performance unheard of a few years ago! Runs on 12 to 15 volts at 15 mA, has 50 to 75 ohm impedance and is unconditionally stable. 1"w x 3/8"h x 1½"d.

KIT

SA7	**RF Preamp Kit**	**$19.95**

RF Actuated Relay

✔ Can switch up to 100 watts of RF power or 1 Amp DC

Senses RF!

KIT

This is the unit you need when adding a pre-amp or power amp in line with an existing antenna. It senses the RF power and closes an on-board DPDT relay which can be used to automatically switch in your added power amp or preamp. The relay is good up to UHF -100W! Many folks use one of these 'life-savers' in front of their expensive test equipment. Runs on 10 to 15 VDC. Senses power as low as 50 mW. Size: 1½" x ½" x 4".

RFS1	**RF Relay Kit**	**$19.95**

Infra-Red Thermometer

NEW FOR 2004!

Wired & Tested

- ✔ Easy contact-free temperature measurement
- ✔ Momentary or continuous measurement
- ✔ Last measurement data hold/display
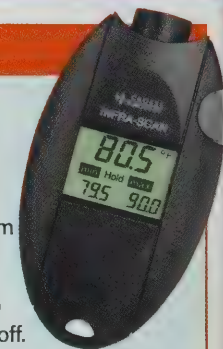- ✔ Continuous capture of min/max values
- ✔ Large backlit LCD display

Ready, Aim...
And Measure!

This beauty is one of the neatest thermometers we've ever seen! You can measure the temperature of anything merely by pointing a IR beam of light at it! That's right, no contact, no sensors, no wires, glass, nothing but a beam of IR light! Is your motor running hot? Is your refrigerator cold enough? How cold IS that bottle of soda? If you want to know, just aim and push the button. The temperature is immediately displayed on the backlit LCD display! Last measurement is automatically held and stored until power-off. Measurements can be momentary or continuous, with minimum and maximum temps held during measurement! You can't ask for much more than that in a handheld thermometer that is contact-free besides!

How does it work, you ask? Well if you really want to know, when making a temperature measurement the surface radiation of the object to be measured is evaluated using the principle of radiation thermometry. This is a purely passive process, i.e. no radiation is transmitted, but instead, use is made of only the natural electromagnetic radiation energy (heat radiation) that every body above a temperature of absolute zero (-273 °C) has. The temperature can be determined very accurately from this radiation energy if the emission factor of the object being measured is known. We'll stop there, because we only have so much space for all this copy! Runs on 4 LR44 cells (included) for a long life. If you want to know what the temperature is, check it out with the IR101! *(The bartender didn't care when I told him my "ice cold beer" was 47.3° so I showed him...he still didn't care!)*

SPECIFICATIONS:	
Range:	-5°F to 575°F
Resolution:	0.1°F
Accuracy:	±1°F
Units:	°F or °C
Dist to measurement spot:	6:1
Ambient temp range:	32°F to 104°F
Emission factor:	0.95
Power supply:	4 x LR44 cells
Battery life:	2000 measurements approx.
Dimensions:	2.25" x 1" x 4"

IR101   Infra-Red Thermometer $49.95

RF Remote Control System

NEW FOR 2004!

Wired & Tested

- ✔ Uses 433 MHz RF for wireless control!
- ✔ 4 channel remote controls multiple remotes!
- ✔ Master on/off controls all channels

Wireless Control, Great For
Outdoor Holiday Light Displays!

Universal remote control doesn't get much easier than this! Plug the remote outlet in the wall. Plug the device into the remote outlet. Control the device with the RF remote control! The system operates with RF at 433 MHz so it doesn't have to have "line of site" like IR controls. Plus the remote has 4 selectable channels to control 4 separate functions. Each function can be from one to an unlimited number of remote outlets! The functions are coded into the remote with a 4-digit security code! Separate on and off buttons are provided for each channel. Plus, there is a master on/off that turns off ALL channels!

SPECIFICATIONS:	
Operating voltage:	120V ~ (60Hz)
Maximum current:	30 amps
Maximum power:	3600 watts
Frequency:	433 MHz
Operational range:	80 feet approx.
Remote functions:	4 numbered keys, on/off
Security code:	4-digit
Remote power:	2 x AA batteries

The system comes with one 4-channel remote and two remote outlets. There is a variety of programming options. One remote can control a number of outlets, multiple remotes can control the same outlets, or you can have any combination using 4 channels! Outlets are rated for indoor use. *(I use these for my holiday lights, it was a lot easier than finding the plugs each night!)*

RS204   RF Remote Control Outlet System $39.95

Power Cost Controller

Wired & Tested

- ✔ Cost monitoring and cost forecasting
- ✔ Just plug it in and you're all set!
- ✔ Stores data

Efficient & Easy Monitoring
Of Electrical Consumption!

How many times have you wondered exactly how much it costs to keep something running? Well now you can easily find out! Plug the PCC120 into any standard 110VAC outlet, plug the device or devices into it, and instantaneously measure its consumption! It doesn't get much easier than that! Monitor energy usage and view cost of operation of any device. Check your refrigerator efficiency, compare incandescent vs fluorescent bulbs, and much more. Enter in energy costs, and it will forecast operational cost on a daily, monthly and yearly basis! Displays power usage, current power consumption in watts, maximum load power in max watts, total energy consumption in total kilowatt hour, calculates cost of operation based on actual usage and kilowatt/hour cost, forecasts daily, monthly and yearly costs, and calculates the cumulative costs since startup or reset. An internal button cell powers the unit and stores data, making it non-dependent on AC power. *(I put one of these on one of the engineer's soldering irons to show him what it costs when he leaves it on EVERY NIGHT!)*

SPECIFICATIONS:	
Supply voltage:	120V ~ (60Hz)
Absolute max. loading rating:	1800W (15A)
Battery:	LR44, 1.5V Button Cell (included)
Accuracy:	±2W or ±2% whichever is greater

PCC120   Power Cost Controller, Factory Assembled & Tested $39.95

High Performance!

KIT ━━━ Wired & Tested

Professional RF Power Meters

✔ Broadband: PM50 10 kHz to 450 MHz ± 0.5dB, 10kHz to 500 MHz ± 2dB; PM10DC: 50 kHz to 250 MHz ± 1.5dB
✔ High dynamic range: better than 77dB!!
✔ Power Handling: up to 50 Watts continuous maximum; PM10DC low insertion loss, less than 0.1dB
✔ Readings auto-range and are displayed in Watts/dBm/etc
✔ Easy to read LCD display with powerful microprocessor

PM10DC

Winter Super Sale
Expires 01/15/04

PM50

The PM line of digital power meters is what every RF lab technician or micro-broadcaster needs on his workbench. Until now, power meters of this capability cost thousands! Imagine being able to accurately measure RF power from almost any signal source - and with the PM10, be able to tune and match antennas! Once you use one, you will wonder how you ever did without it! And if you are a micro-broadcaster, the PM10DC will allow you to squeeze every drop of signal out of your transmitter into a perfectly matched antenna for maximum range!

The PM50 includes a 50 watt, 50 ohm dummy load allowing you to tune your transmitter off air without causing interference. An intelligent speed controlled fan adjusts cooling of the load according to power measured! Extremely wide power range allows continuous measurement from an amazing 1µWatt to 50Watts, all without any manual range switching or setting - that's over 77dB! And accuracy is an astounding ± 0.5dB over the entire specified frequency range!

The PM10DC is a directional coupler power meter allowing measurement of both forward and reverse power. This is very useful for tuning antennas and checking the entire transmission system. You can easily see the amount of power going out from the transmitter and the amount of power being reflected back from a mismatched antenna. Trim your antenna for maximum efficiency! Extreme dynamic range allows you to get meaningful measurements even with transmitters of less than 1mW of power or up to 50 watts!

A powerful processor calculates and displays forward and reverse power, VSWR, dB of directionality, AM percent modulation, peak power, and average power. Try doing that with any other power meter for less than a thousand bucks! So which meter do you need?

Use the PM50 if you need to test transmitters off-air or into a good 50 ohm dummy load. And the PM10DC is just the ticket for tuning antennas and checking your entire transmitting system. Both units include the matching case & knob set and power adapter. Case size 5"W x 1½"H x 5¼"D.

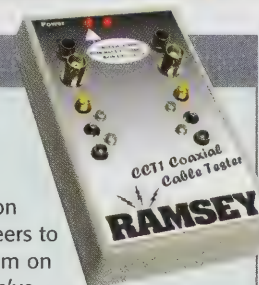|			
PM10DC	**Power Meter/Directional Coupler Kit, Includes Case And 110VAC Power Adapter**	**$119.95**	$~~149.95~~
PM10DCWT	**Factory Assembled & Tested PM10DC**	**$164.95**	$~~199.95~~
PM50	**Power Meter/Dummy Load Kit, Includes Case And 110VAC Power Adapter**	**$109.95**	$~~129.95~~
PM50WT	**Factory Assembled & Tested PM50**	**$154.95**	$~~189.95~~

Coaxial Cable Tester

Wired & Tested

✔ Gives you absolute go/no-go results
✔ Indicates good, open, or shorted
✔ Supports popular coaxial connector types!

Check Those Coax Cables Quick And EASY!

CCT1 Coaxial Cable Tester
RAMSEY

✔ RCA Phono-Female
✔ BNC-Female
✔ SMA-Female
✔ SMB-Male
✔ SMB-Female

It all started when we were looking for an easy way to test coaxial cables and jumpers on our production floor. We were using the old DMM probe test, and that was getting pretty lame! So we told our engineers to come up with a box to test all the coax configurations that are popular. It became the most popular item on the test floor! They put away the Fluke meters, and put one of these with every set of crimpers...and we've noticed an incredible decrease in failed cables!

So we figured if WE found it handy, so will you! The CCT1 gives you an absolute go/no-go test, showing good, open, and shorted conditions. The CCT1 has dual sets of connectors on the front panel.

Any coaxial cable with any combination of these connectors can be instantly go/no-go tested. That means you can test same connector cables as well as cross connectorized cables. Just connect both ends of your cable to the box, and instantly know its status! It doesn't get much easier than that. Operates on 12VDC with AC power adapter included.

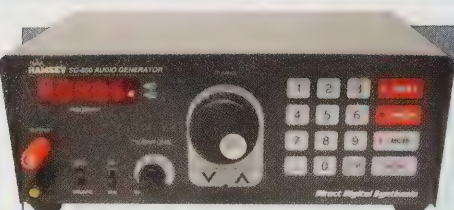|		
CCT1	**Coaxial Cable Tester, Factory Assembled & Tested With Case**	**$79.95**

ramsey
DID YOU KNOW?

In 1986 we introduced the COM3 Service Monitor and set the standard for low cost, high performance equipment!

IN 2004 WE'RE DOING IT ALL OVER AGAIN!

COM3

DDS Audio Signal Generator

Wired & Tested | **KIT**

Lab Quality DDS Technology!

✔ 0.1 Hz to 50 KHz with 0.1 Hz resolution
✔ Bright 5 digit display with direct keypad frequency entry
✔ Frequency continuously variable using rotary dial or up/down step keys
✔ Two channels with memory for easy frequency hopping
✔ Sine or Square wave output

In the past, generators of this capability were priced in the thousands of dollars, but new DDS (Direct Digital Synthesis) technology combined with the latest microprocessor control brings the cost down to the hobbyist range. The DDS Audio Signal Generator will generate signals from 0.1 Hz all the way up to 50 KHz. Both square and low distortion sine waves are available. An easy-to-read six digit LED display and direct keyboard entry allow error-free entry of desired frequency. DDS technology means that all frequencies are digitally accurate and referenced to the stable, master crystal reference oscillator. Entered frequencies may be adjusted up or down in precise step increments using the step up/down keys or the large tuning knob. Output level is continuously adjustable from 0 to 3.5 volts peak-to-peak. The rugged and handsome sealed membrane keyboard is immune to most solvents and resists demanding shop usage and soiling. A quick wipe with some Windex™, and your DDS Audio Signal Generator looks good as new. A good audio generator is invaluable on any bench, so retire that jury-rigged, tired old generator you're making do with and experience the pleasure of using a new DDS Audio Signal Generator. 12VAC wall adapter included. Available fully wired and tested or in money saving kit form. Case size: 9 5/8"W x 3 3/4"H x 6"D.

SG550	DDS Audio Signal Generator Kit	$199.95
SG550WT	Factory Assembled & Tested SG550	$269.95

SINAD Meter

Wired & Tested

✔ Make reliable sensitivity checks on pagers, radios and other receivers - the first time, every time.
✔ Just connect it to a speaker or audio point and you're done.

Align That Receiver... QUICK!

Here's a sinad meter that's dependable, easy-to-use, and priced right - just like our proven and trusted COM3 Communications Service Monitor. And, this hard working unit has been designed with the latest in digital technology, so there's no drift, tuned circuits, or touchy adjustments. Precise operation is assured through the use of crystal controlled filters and monolithic AGC circuitry with over 50 dB of dynamic range. Our wide range input allows solid readings, from the speaker leads all the way to that deep-down hidden discriminator test point. And, our exclusive 'Level OK' LED tells you when the signal is locked for dependable readings. It's a no-brainer using the SM1; just connect it to the speaker - or any audio point, and you're done, plus our manual explains sinad measurements so you can be an expert in minutes! Now anyone can make reliable sensitivity checks on all receivers, pagers, and radios the easy SM1 way. 12 VAC wall adapter included. Case size 9 5/8"W x 3 3/4"H x 6"D.

SM1WT	Factory Assembled & Tested SM1 Sinad Meter	$99.95

RF Millivoltmeter

Wired & Tested

Meter The Weakest RF Signals!

✔ Wideband frequency response - 20 KHz to 1500 MHz!
✔ RF level sensing from 300 microvolts to 0.3 volts
✔ High impedance input to minimize test circuit loading for superior performance

Looking for the sensitivity and accuracy of a top notch millivoltmeter without giving-up two week's profit? Then look no further, the Ramsey MVM1 is designed with all the accuracy and sensitivity of units costing hundreds more, in an easy-to-use and durable package. Even the probe of the MVM1 is designed to be rugged, and sports a quick release, easy to replace, BNC adapter tip. No more broken or intermittent tips that cause measurement error. Now you can test everything from transmitter output power (with proper load) to the most sensitive receiver circuits, all with one meter. The MVM1 has six direct reading ranges (in convenient 10 dB steps) calibrated in both true RMS and dBm to allow for superb accuracy. Specific attention to circuit design and layout allows the MVM1 to exhibit exceptionally flat frequency response which provides measurements you can rely on. The large, easy-to-read analog meter provides the best display for peaking gain stages or probing transmission paths while looking for faulty components. Now every test bench from pager repair to research and development labs can afford a top notch RF Millivoltmeter...the MVM1!

MVM1	RF Millivoltmeter, Factory Assembled & Tested	$295.95

Professional LCR & Temperature Meter

Wired & Tested

✔ Temperature probe included

Measure Resistance, Capacitance, Inductance & Temperature!

3½ Digit, 2000 Count
DC Volt: 0-20V ±2% Resistance: 0-20/200 ohm/2/20/200/2000K ohm/20/200/2000M ohm ±0.3%
Capacitance: 0-200P/2/20/200nF/2/20µF ±2%/200µF to 200mF ±3%
Inductance: 0-200µH/2m/20m/200mH/2H/20H±5%
Temperature: -20-500C ±2% 500C-750C ±3%
Capacitance: 0-200P/2/20/200nF/2/20µF±2.0%
Frequency: Autoranging up to 15MHz ±0.1%
Continuity, Diode Test Function
Signal Output Function
24VDC/24VAC Overload Protection
10A Fused Protection
hFET Test Function

The DMM240 handheld LCR meter will measure resistance from 20 to 2000M Ohms in nine ranges. It will also measure capacitance from 200pF to 200mF and inductance from 2µH to 20H and much more.

It has a 3½ digit, 2000 count display. Meter Capacitance in 8 Ranges, Max & Data Hold Feature, and Autoranging Frequency to 15MHz. Comes complete with temperature probe, standard probes, and holster style case.
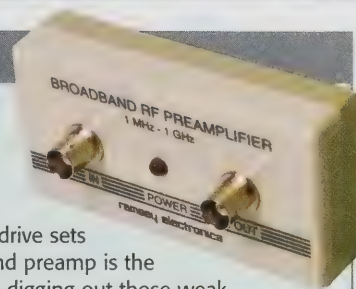
DMM240	LCR & Temperature Meter	$99.95

Broadband Preamp

Increase Sensitivity Of Receivers & Test Equipment!

✔ Broadband...from 1 MHz to 1000 MHz, usable to 2000 MHz!
✔ Low noise figure, < 2.5dB
✔ Improves AM, FM, VHF TV, UHF TV, and HF reception. 50 – 75 ohm imp.
✔ Over 25 dB Gain with up to 100 mW of power output!

Ever wish you could "perk-up" your counter or scanner to read weak signals? Or how about boosting that cable TV run to drive sets throughout the house or maybe preamping that TV antenna to bring in that blacked out football game? The PR2 broadband preamp is the answer to all these needs as well as many others. You can use the PR2 anywhere a high gain, low noise amp is called for; digging out those weak shortwave signals or putting new life into that scanner radio – especially at 800 MHz. Since the PR2 has such a high compression point of almost 100 milli-watts, you can even use it to boost the power of small, micro transmitters! Microwave MMIC chips from NEC Japan enable the PR2 to have gain up to 2 GHz although we only spec the PR2 to 1 GHz (believe it or not the connector lead length is the limiting factor!). Customers tell us that the PR2 outperforms pro-fessional lab units by the "Big Boys" that go for hundreds of dollars more. The PR2 is the ideal general purpose RF amp that you'll wonder how you got along without. Runs on 12 VAC/DC or 120 VAC using the included wall adapter. Size: 4" x 2" x 1".

PR2   Broadband Preamp, Factory Assembled & Tested $59.95

Sniff-It RF Detector Probe

Measure RF With A VOM!

✔ Use with any DMM or VOM to measure RF!
✔ Low cost RF measurement
✔ Can also be used as a field strength meter!

The RF1 is a very sensitive RF detector probe that connects to any digital multimeter and provides a DC voltage output from weak RF signals. This allows very easy tracing of low level RF signals that a counter can not pick up. Wide frequency coverage of 100 KHz to over 1000 MHz lets you track down most any problem in transmitter chains, receiver stages, or even complex PLLs. Works great as a sensitive field strength meter, too. Uses exotic low barrier microwave detector diodes to give exceptional sensitivity which can see signals down to microwatt levels! A great low cost way of checking for RF. Fully assembled and tested, and includes standard banana plugs for use with any standard VOM, DMM or voltmeter. If you need to measure RF and don't want to spend big bucks, here you go!!

RF1   RF Sniff-It Probe, Assembled & Tested $22.95

Wireless LAN Adapter Cable

The Mystery Connector!

✔ Used with many 2.4 GHz wireless LAN access points
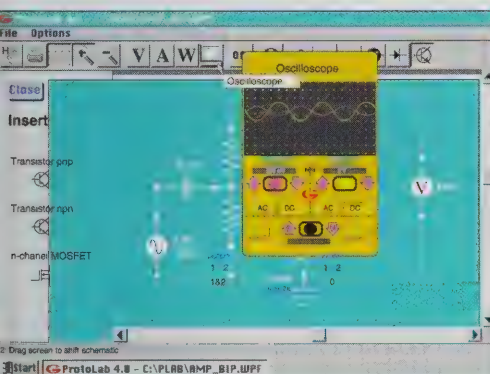✔ Allows external antenna connections
✔ Low loss cable and connectors

The most common connector on consumer 2.4 GHz Wireless Access Point (802.11b) products is referred to as a RP-TNC connector. This is common with Linksys, Cisco, and others. Our ISMC1 pigtail plugs directly into these devices to give you a standard Type-N male for your cable connec-tion. Ideal for connecting external antennas to these devices. *NOTE: Not all devices use this connector, and not all devices have an external connector. Check your device BEFORE ordering this pigtail!*

ISMC1   RP-TNC/Type-N Male 18" Low Loss Pigtail Cable $29.95

Protolab 4.0 Circuit & Test Simulator for PC

Create And Test That Circuit... Without Building It!

✔ Simulate a circuit BEFORE building it!
✔ Professional features, hobbyist price
✔ Simple computer interface and operation
✔ Loads of sample circuits to simulate
✔ Great learning tool for budding engineers

Easy to use PC interface. Easily create AC & DC circuits moments after installation with ProtoLab's easy "click and drag" component placement and on-line help. You choose from a complete list of active and passive components, all of which are included. Once built, you can test and analyze your circuit with five virtual instruments also included. Requires PC (Not Mac!), Win3.1 or higher.

ProtoLab 4.0 is designed to work as a simulated prototyping lab. Insert components on a grid similar to a breadboard, then test the circuit using the appropriate test instrument from the tool bar. ProtoLab's prototyping grid area is extensive and can handle a vast array of active and passive components. Protolab's predesigned circuit library includes: MOSFET & transistor amplifiers, bridges, sinewave oscillators, squarewave oscillators, phase shift oscillators, current mirrors, integrators, differentiators, transistor & MOSFET monostables, LC oscillators, tuned collector amplifiers, LC tuned circuits, power supplies, and voltage stabilizers.

Components include wires, junctions, grounds, resistors, capacitors, inductors, DC voltage sources, AC voltage sources, DC current sources, AC current sources, diodes, zener diodes, transistors, and MOSFETs. Including: Voltmeter, ammeter, wattmeter, oscilloscope, and ohmmeter.

PLAB4   ProtoLab 4.0 Test Simulator Software $49.95
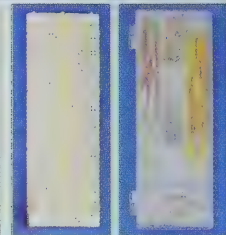
Wired & Tested **KIT**

Mini-Lab 200

✔ Function generator, clock output, power supplies, level switches, pulsers, pots, LED's, and a large breadboarding area ALL IN ONE!
✔ Available factory assembled and tested or in a "learn as you build" kit!
✔ Custom molded case included!

The Mini-Lab 200 is a complete system for building and testing prototype analog and digital circuits. The popular Mini-Lab is in use throughout the world in hundreds of colleges, universities, tech schools and R&D labs - and for good reason - it is an exceptional piece of equipment at an amazing price!

When purchased in kit form, the easy to follow assembly manual permits the student to learn proper assembly techniques and in about 16 hours have a professional piece of test equipment for immediate and future use. Kit or factory assembled and tested, the Mini-Lab 200 comes with a custom molded travel case to keep your lab station looking like new for years to come.

WBU206   **WBU202**   **WJW70**

Features BREADBOARDING AREA with 160 tie points, 1K &100K POTENTIOMETERS, 8 buffered LED's, 2 TTL buffered and debounced PULSERS, square-sine-triangle FUNCTION GENERATOR, open collector CLOCK OUTPUT, 8 unbuffered output LEVEL SWITCHES, and Fixed +5 Volts (±0.2V) 1.5 Amps; ±12Volts (±0.6V)1.5 Amps; Variable 0 to ± 18 Volts 1.5 Amps; 30VAC CT POWER SUPPLIES.

ML200	Mini-Lab 200 Kit with Custom Molded Case	$155.95
ML200WT	Mini-Lab 200 Factory Assembled & Tested, with Custom Molded Case	$225.95
WBU206	Breadboard, 3 Terminal Strips, 5 Bus Strips, 2390 Tie Points, 4 Binding Posts, 6.9" x 5.8"	$23.95
WBU202	Breadboard, 1 Terminal Strip, 2 Bus Strips, 830 Tie Points, 6.5" x 2.1"	$6.95
WJW70	Jumper Wire Kit, 140 Pieces	$4.95

0-30VDC Adjustable Power Supply

Wired & Tested

✔ 0 to 30VDC variable output
✔ 5A output

Input: 110VAC, 2.21A at rated output
Output: 0-30VDC, 5A, adjustable
Ripple: 50 mV P/P max at rated output
Load Regulation: ±2%
Adjustment: Fine and coarse adjustments
Outputs: Positive, negative and ground banana jacks

The perfect power supply for your bench. Features a heavy duty metal case and continuous duty heatsinks. Built-in short circuit and thermal protection with "auto reset" for the most reliable operation, and to make it virtually impossible to damage the power supply! If you're looking for a great power supply, here it is! Measures 11.5" x 9" x 4.75". *(Engineer Dave wants one, I'd rather have the WS2510 weather center myself!)*

PS32LAB	Lab Power Supply, 0-30VDC, 5A Adjustable	$99.95

Wired & Tested

Soldering/Desoldering Station

NO CLUTTER!
Solder & DeSolder With ONE Station!

✔ Tip temperature accurate to within ± 3 °C (6°F)
✔ Zero Voltage switching and fully grounded design makes this unit safe for electro-sensitive devices.
✔ Adjustable temperature w/o changing tips.
✔ The pump is controlled by a finger actuated, thyristor switching circuit located on the desoldering handle.

We have checked out a lot of desoldering stations, but this one is a winner! With newer miniature components, multipin devices, and surface mount devices, the days of a soldering iron and a roll of solder wick are over. How many times have you tried to remove that DIP package, only to lift up a trace on the PC board or damage the device? Now desoldering's a breeze! We looked for a quality desoldering station that would be perfect for our customers. It needed to be foolproof and yet affordable. And at the same time had to provide desoldering AND temperature controlled soldering in one station. This is it! The 988 features precise temperature control for both soldering and desoldering. Includes one 98804 solder tip and one 98802 desoldering tip. A wide assortment of optional soldering and desoldering tips are available. If you're looking for a professional soldering and desoldering station at a great price, the 988 is for you.

988	Professional Temperature Controlled Soldering/Desoldering Station	$389.95
98801	Desolder Tip, .040"/1mm	$8.95
98802	Desolder Tip, .048"/1.2mm	$8.95
98803	Desolder Tip, .060"/1.5mm	$8.95
98804	Solder Tip, Conical, 1/32"/0.8mm	$4.95
98805	Solder Tip, Chisel, 1/64"/0.4mm	$4.95
98806	Solder Tip, Chisel, 1/16"/1.6mm	$4.95
98807	Solder Tip, Knife Blade, 45 Degree, 5mm	$4.95

NEW FOR 2004!

ramsey COM3010 SERVICE MONITOR

Full Duplex Communications Service Monitor

✔ Reverse Power Protection, 100 watts into an included 50-ohm load on Generate output
✔ 2 Vacuum Fluorescent graphical displays, 16x140 pixels
✔ 100 sequences of 100 registers, complete system memories
✔ Linear, log, and decade of up to 1000 pts for sweeping generator
✔ Scanner mode allows scanning through a sequence of 100 stored settings
✔ Sinad Meter displays reading from -40dB of sinad to +2dB. Loop-back audio for tested equipment
✔ IF frequency counter measures frequency error of received frequency to 1Hz
✔ Battery meter displays charge left in battery
✔ Power meter displays power when unit is keyed into the generator output. Reads from -10.0dBm to +50.0dBm

The Legacy Continues... Brand New For 2004!

In 1986 we introduced the COM3. Rivaling communications service monitors selling for $10K and more, the COM3 broke the $2,000 price barrier! We gave thousands of happy customers the features they needed at a common-sense price they could afford! Containing just the features they needed to get the job done, and no extras you never used, it made for a reliable piece of equipment, which is still in use all over the world!

The COM3010 includes a fully configurable sweep generator, a self-calibrating RSSI meter which can be used for testing frequency response and filter sweeps, a highly accurate calibrated level output, a 100W dummy load and power meter, and even an integrated scanner for monitoring your site's activities. Also includes the standard features of a service monitor such as AM and FM modulation meters, signal generator and receiver capable of FM and AM modulation, an audio frequency counter for CTS and other tests, DCS encoding, CTS encoding and a whole lot more!

For portable use the COM3010 includes a single battery allowing 1+ hours of operation, and this can be upgraded to three batteries for 4 hours of portable operation. The COM3010 also includes a highly accurate TCXO at 0.1ppm, which can be user calibrated from the front panel! Just tune in a frequency standard and adjust the TCXO to make frequency counter match the frequency standard! This allows you to be highly accurate during portable use when other equipment fails without an external reference.

For additional information on the brand new COM3010, give us a call at 800-446-2295 or visit us at www.ramseytest.com!   **Wired & Tested**

DETAILED SPECIFICATIONS

GENERATE MODE

Frequency:	0.1MHz - 1.0GHz
Step size:	1 Hz
Accuracy:	± 0.1 ppm standard
RF output:	-127dBm to > 0dBm
Step size:	0.1dB
Accuracy:	± 0.5dB
Units:	dBm, uV, mV
Leakage:	1uV, 2 turn loop, 1" dia. at 1"
Spur. Harmonics:	Less than -30dBc at 1MHz
Non-harmonics:	-50dBc typical
FM Modulation:	± 75kHz max in 0.1Hz steps.
FM Bandwidth:	10Hz - 75kHz
Accuracy:	± 0.1ppm (inherently tied to reference frequency)
AM Modulation:	0 - 75 % in 1% steps
AM Bandwidth:	10Hz - 10kHz
Accuracy:	± 5%
Distortion:	Less than 5%
Modulation Types:	
Internal:	0.1Hz - 3 kHz
External:	0.1Hz - 3 kHz digital and analog selectable, automatic leveling.
	CTS Encode
	DPL Encode

RECEIVE MODE

Frequency:	0.1 - 1.0GHz
Step size:	10 Hz
Sensitivity:	Less than 5uV
FM Demod:	0 - 7 kHz, 0 - 4kHz
AM Demod:	0-100%
CTS Decode	(In AF frequency count)
Frequency error:	0-1MHz, two methods of bargraph and count.
Frequency counter:	100Hz - 1000MHz
Sensitivity:	Less than 10mV
Gates:	0.1 Sec, 1 Sec
Audio counter:	1Hz-3000Hz
Gates:	10 Sec variable gate for 1 Sec quick updates.
Sensitivity:	10mV at demod audio, (± 30Hz deviation)
AF Demod output:	1Vp-p for 7kHz deviation

GENERAL

Receiver input:	Has diode protection and fused parts.
Battery life:	1.5 hours, expandable to 4.5 hours.
Controls:	Elastomeric
Dummy Load:	100W 30dB attenuator included with heatsink for 25% duty cycle at full power. 30dB attenuation output available on back panel for use into other equipment.
Primary power:	100-240VAC, .6A, 50/60 Hz; built in 2 hour battery pack (holds 2 additional battery packs)

COM3010	Full Duplex Communications Service Monitor, With 1 Li-Ion Battery Pack	$4,795.00
BP3010	Additional Li-Ion Battery Pack, Extends Battery Operation By 2 Hours (Max. 3 Packs)	$59.95
CC3010	Matching Black Padded Cordura Carrying Case With Strap	$129.95

RF Signal Generator

✔ 100 KHz–1100.00000 MHz
✔ 10 Hz Continuous Tuning
✔ AM & FM Internal/External Modulation
✔ 90 User Setup Memories
✔ RS232 Interface

Wired & Tested

Professional Quality... Experimenter's Price!

Technical Specifications *(at 0 dBm output level)*

Frequency Range:	100 KHz to 1100.00000 MHz
Resolution:	10 Hz continuous tuning, 100 Hz above 1000 MHz
Oscillator Frequency:	50 MHz TCXO
Oscillator Stability:	±0.1 ppm from 15°C to 35°C
Harmonics:	-30 dBc typical, 1 MHz–1100 MHz
Non-Harmonics:	-50 dBc typical
Residual FM:	5 Hz typical, 0.3 to 3 KHz detection BW
Residual AM:	-60 dBc (>10 KHz from carrier) 0.3 to 3 KHz detection BW
Output Level:	-130 to +10 dBm (50 Ohms); Resolution: 0.1 dB
Level Accuracy:	±1 dB (>500 KHz)
Level Units:	dBm, dBmV, mV, dBµV, µV
Reverse Power Protect:	25 watts, 50 VDC
Leakage:	1 µV (2 turn loop, 1 inch diameter, 1 inch distance)
Frequency Modulation	
Range:	0–99.9 KHz in 0.1 KHz steps
Accuracy:	±5% of scale
Freq. Response:	50 Hz to 15 KHz
Max. Deviation:	99.9 KHz; except 250 to 500 MHz, 50 KHz
Amplitude Modulation	
Depth:	0–75% in 1% steps <0 dBm
Distortion:	Less than 5%
Accuracy:	±5%
Freq. Response:	50 Hz to 25 KHz
Modulation Sources:	Internal 1 KHz derived from reference. External – 600 ohm impedance with level LEDs to indicate correct 1 Volt p-p input level
Front Panel:	Sealed membrane with audio acknowledgment
Display:	Two line, vacuum fluorescent display
RS-232:	RS-232 interface provides polled readout plus downloading and uploading of all front panel setups
Memory:	90 full front panel set-ups. 9 series of 10 memories each. 10 year retention
External Timebase Input:	10 MHz, 1 Volt p-p
Power Requirements:	90 to 230 VAC ±10%, 50/60 Hz
Dimensions:	12"w x 6"h x 12"d
Weight:	11 lbs.

RF SIGNAL GENERATOR
With A Frequency Range Of 100 KHz to 1.1 GHz, You Can Align Any Receiver!

Excellent Value
The RSG1000B has been designed to fill the need for a basic RF signal generator for design, development, and testing. We've included the performance and features you need every day, and priced it to let you equip every bench in your shop or classroom. Standard features include a .1 ppm time base, 90 set-up memories, and an RS-232 interface that supports polled readings plus download and upload of all setup memories. At 12" x 6" x 12" and 11 lbs., it is suitable for mobile use as a service tool or local oscillator.

Accurate and Stable
Frequency synthesis is referenced to an internal 0.1 ppm 50 MHz timebase. This timebase is STANDARD equipment with the RSG1000B!

Easy to Use
The display is a bright blue VFD you can read from across the room, and displays all operating parameters. A numeric membrane keypad enables direct entry of all values. All functions are accessible without using a "shift" or second function key for real ease of use. We have also incorporated a "smart knob" which has analog feel, but is intelligently enabled when entering or changing parameters in any field.

Cost Effective!
We encourage you to compare the RSG1000B to any of the "other guys". Look real close and compare your needs and performance to the dollars you will spend. You'll see immediately that the RSG1000B offers the best cost-performance value available today. As one of our satisfied customers stated, "With the RSG1000B I get 90% of the performance of a $20,000 RF generator for 10% of the price; it's really a no brainer".

RSG1000B	RF Signal Generator, 100 KHz - 1,100 MHz, 0.1ppm Timebase	**$1,995.00**

Wired & Tested

20 MHz Dual Trace Oscilloscope

Solid Performance... Budget Price!

✔ 20 MHz dual trace
✔ 5 mV sensitivity
✔ Triggered sweep
✔ 6" high brightness CRT
✔ High performance, low cost!

Here's a real deal on a good dual trace scope. The 20 MHz bandwidth is adequate for most needs and since you can actually view signals up to 50 MHz, you'll find a real cost savings over a 50 MHz scope! Dual trace lets you view timing and input/output signals on the same screen for fast analysis, and the high sensitivity of 5 mV/div captures small signals that can slip by. Rock solid triggering is really appreciated when looking at slow rep rate signals. Included are two high quality hook-on scope probes that are worth $60 by themselves! The AAS1 is a great scope at a super price. The AAS1 scope features a manufacturers one year warranty!

AAS1	20 MHz Dual Trace Oscilloscope, Factory Assembled & Tested	**$399.95**

Build It, Learn it, Achieve It, Enjoy It! *ramsey* Fun Electronics...Now in our 31st Year!

Professional Tools

✔ Xcelite® Pro Series
✔ Ergonomic & ESD Safe
✔ Ultimate quality

What's the key ingredient to successfully building your new kit? The proper tools! What makes the difference between enjoying the pleasure of kit building and fighting with it every step? The proper tools! When precision is needed you need precision tools, and these are just that!

These are made in the USA by Xcelite®, the standard in quality for electronic tools. We have pulled off a deal to provide our customers with their best, at a great price!

PTS300

PTS310

PTS311

PTS400

PTS401

PTS300 7 piece Pro-Series driver set, tempered treated tips, ergonomic handle and ESD safe. 1/8" slotted, 5/32" slotted, 3/16" slotted, 1/4" slotted, 5/16" slotted, #1 Phillips, and #2 Phillips.
PTS310 6 piece Pro-Series precision driver set in a hinged case. Tempered treated tips, ergonomic handles with concave swivel caps and ESD safe. 1.5mm x 60mm slotted, 2.0mm x 60mm slotted, 2.5mm x 60mm slotted, 3.0mm x 60mm slotted, #0 Phillips, #00 Phillips tip screwdrivers.
PTS311 6 piece Pro-Series precision driver set in a hinged case. Tempered treated tips, ergonomic handles with concave swivel caps and ESD safe. #5pt. Torx, #6pt. Torx, #7pt. Torx, #8pt. Torx, #10 pt. Torx and #15 pt. Torx tip screwdrivers.
PTS400 4" precision FLUSH cutting, tapered head diagonal cutters, with cushioned grips, ESD safe.
PTS401 4" precision long nose plier, super fine point, with cushioned grips, ESD safe.

PTS300	7pc Pro-Series Driver Set	$29.95
PTS310	6pc Pro-Series Precision Driver Set	$21.95
PTS311	6pc Pro-Series Precision Torx Driver Set	$24.95
PTS400	4" Precision Diagonal Cutters	$13.95
PTS401	4" Precision Long Nose Plier	$12.95

Helping Hand & Magnifier

✔ Built-in magnifier
✔ Alligator clip holders

So you're trying to hold that small board, while holding the transistor you're trying to solder in, and holding the soldering iron, and holding the solder! Wait a minute, that's 4 hands! Not a problem! Just clip the board, junction or component you're working on onto the bench holder, swivel it wherever you want it, and go to work! What, you can't see? It even has a built-in magnifier!

HH3	Helping Hand with Magnifier	$8.95

Jeweler's Eye Loupes

✔ Twin set, 10x and 5x power
✔ See up close, really close!

You've seen jewelers pop these things in their eyes, to check out your diamond ring. That's how they found out it was Cubic Zirconia from the Shopping Channel! Now you can have a set of 10x and 5x loupes to check out your subminiature parts and components or that ring or watch you just received to see if it's fake!

ELM2	Jeweler's Eye Loupes, Pair	$2.95

Pro Soldering Station

✔ Variable temperature controlled!
✔ Made in the US by Weller!

Here's the ideal soldering station for building your Ramsey kit - and for your bench! Adjustable temperature lets you match the iron to the work for fast reliable connections and what a pleasure knowing you'll never overheat a small circuit trace. This is the famous American Made, Weller brand, a name known for years as America's best!

WLC100	Weller Soldering Station	$49.95
ST2	3/32" Screwdriver Tip	$6.95
ST3	1/8" Screwdriver Tip	$6.95
ST4	3/16" Screwdriver Tip	$6.95
ST6	1/32" SMT Screwdriver Tip	$6.95

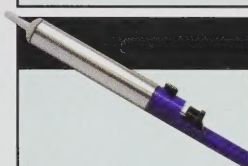## Technician's Solder

✔ Electronics 60/40 electronic solder
✔ .032" diameter, 1 pound spool

Whether it's for building your new kit, or just for your bench, this is the perfect solder. Don't destroy your kit investment by using the wrong solder, or solder with low quality flux core. This solder is made exclusively for electronic applications, board soldering, SMT and more. It is 60/40 Tin/Lead and 100% non-corrosive. One pound spool.

RTS12	60/40 Electronic Solder	$9.95

Solder Sucker

✔ Eliminate PC board damage!
✔ Cleans out eyelets and holes with ease!

For 5 bucks, this will probably be the most valuable tool you've ever bought! Even the most experienced solderer has problems with removing components from PC boards without one! One hand loading, and one hand operation. Just heat up the joint, place the special tip over the joint, and squeeze the trigger. Solder is sucked right from the board and even plated-through holes! It's that easy!

SS01	Solder Sucker	$4.95

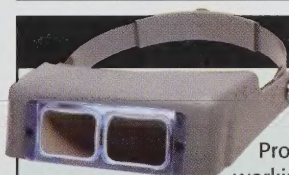## Panavise Bench Vise

✔ Holds PC boards at any angle!
✔ Heavy duty base

Trying to solder and unsolder tiny components on small boards can be a challenge for even the most experienced. Here's a gem of a handy vise that is very sturdy and has the flexibility to hold boards at virtually any angle. Includes 2 7/8" jaws and a large base/parts tray with lockable flex joints.

RTS13	Panavise Bench Vise	$39.95

Optivisor Magnifier

✔ See those parts with ease!
✔ Professional Quality

Probably the handiest helper you can have for working with small electronic parts. Working with today's subminiature components, it's really easy to make a mistake. The Optivisor is your solution! One size adjustable headband tightens around your head. When you need to see a closeup view, simply flip the visor down. When done, flip it back up. It's that easy! Fits over your standard glasses. Same quality as the ones you see your doctor use!

RTS26	Optivisor Magnifier Headband	$29.95